

FORM PTO-1090 (REV 11-98)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER 3525-28
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) 09/403392 <i>Unassigned</i>
INTERNATIONAL APPLICATION NO. PCT/SE99/01333	INTERNATIONAL FILING DATE 3 August 1999	PRIORITY DATE CLAIMED 13 August 1998
TITLE OF INVENTION NOVEL COMPOUNDS		520 Rec'd PCT/PTO 21 OCT 1999
APPLICANT(S) FOR DO/EO/US AUSTIN et al		

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

- ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
- ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
- ☒ This is an express request to **DELAY** national examination procedures (35 U.S.C. 371(f) until the expiration of the applicable time limit set in 35 U.S.C. 371(b) Articles 22 and 39(1).
- ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.

A copy of the International Application as filed (35 U.S.C. 371(c)(2)).

- ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
- ☐ has been transmitted by the International Bureau.
- ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).

- ☐ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
- ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).
 - ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - ☐ have been transmitted by the International Bureau.
 - ☐ have not been made; however, the time limit for making such amendments has **NOT** expired.
 - ☐ have not been made and will not be made.
- ☐ A translation of the amendments to the claims under PCT Article 19 (U.S.C. 371(c)(3)).
- ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
- ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. To 16. Below concern document(s) or information included:

- ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
- ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
- ☐ A FIRST preliminary amendment.
☐ A SECOND or SUBSEQUENT preliminary amendment.
- ☐ A substitute specification.
- ☐ A change of power of attorney and/or address letter.
- ☐ Other items or information.

U.S. APPLICATION NO. (If known, see 37 CFR 1.53) <div style="font-size: 24pt; font-weight: bold; text-align: center;">09/1403392</div>		INTERNATIONAL APPLICATION NO. <div style="font-size: 24pt; font-weight: bold; text-align: center;">PCT/SE99/01333</div>		ATTORNEY'S DOCKET NUMBER <div style="font-size: 24pt; font-weight: bold; text-align: center;">3525-28</div>																																		
17. <input checked="" type="checkbox"/> The following fees are submitted:				CALCULATIONS PTO USE ONLY																																		
BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)): <div style="margin-left: 20px;"><div>Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO\$970.00</div><div>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO\$840.00</div><div>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO\$760.00</div><div>International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4)\$670.00</div><div>International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)\$96.00</div></div>				<table border="1" style="width:100%; border-collapse: collapse;"><tr><td style="width:10%; text-align: right;">\$</td><td style="width:40%; text-align: center;">970.00</td><td style="width:50%;"></td></tr><tr><td style="text-align: right;">\$</td><td style="text-align: center;">0.00</td><td></td></tr></table>		\$	970.00		\$	0.00																												
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Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				<table border="1" style="width:100%; border-collapse: collapse;"><tr><td style="width:10%; text-align: right;">\$</td><td style="width:40%; text-align: center;">0.00</td><td style="width:50%;"></td></tr></table>		\$	0.00																															
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Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				<table border="1" style="width:100%; border-collapse: collapse;"><tr><td style="width:10%; text-align: right;">\$</td><td style="width:40%; text-align: center;">40.00</td><td style="width:50%;"></td></tr></table>		\$	40.00																															
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Fee for Petition to Revive Unintentionally Abandoned Application (\$1,210 - Small Entity Fee = \$605)				<table border="1" style="width:100%; border-collapse: collapse;"><tr><td style="width:10%; text-align: right;">\$</td><td style="width:40%; text-align: center;">0.00</td><td style="width:50%;"></td></tr></table>		\$	0.00																															
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<div style="display: flex; justify-content: space-between;"><div style="width: 60%;"><p>a. <input checked="" type="checkbox"/> A check in the amount of \$970.00 to cover the above fees is enclosed.</p><p>b. <input type="checkbox"/> Please charge my Deposit Account No. 14-1140 in the amount of \$_____ to cover the above fees. A duplicate copy of this form is enclosed.</p><p>c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-1140. A <u>duplicate</u> copy of this form is enclosed.</p><p>d. <input type="checkbox"/> The entire content of the foreign application(s), referred to in this application is/are hereby incorporated by reference in this application.</p></div><div style="width: 35%; text-align: center;"><p>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.</p></div></div> <div style="margin-top: 20px;"><div style="display: flex; justify-content: space-between;"><div style="width: 60%;"><p>SEND ALL CORRESPONDENCE TO:</p><p>NIXON & VANDERHYE P.C.</p><p>1100 North Glebe Road, 8th Floor</p><p>Arlington, Virginia 22201</p><p>Telephone: (703) 816-4000</p></div><div style="width: 35%; text-align: center;"><div style="margin-bottom: 10px;"> SIGNATURE</div><div>Leonard C. Mitchard NAME</div></div></div></div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"><div style="width: 45%; text-align: center;"><div style="font-size: 18pt; font-weight: bold;">29,009</div><div>REGISTRATION NUMBER</div></div><div style="width: 45%; text-align: center;"><div style="font-size: 18pt; font-weight: bold;">October 21, 1999</div><div>Date</div></div></div>																																						

09/403392
420 Rec'd PCT/PTO 21 OCT 1999

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

AUSTIN et al

Atty. Ref.: 3525-28

Serial No. Unassigned

Group:

Filed: October 21, 1999

Examiner:

For: NOVEL COMPOUNDS

* * * * *

October 21, 1999

Assistant Commissioner for Patents
Washington, DC 20231

PRELIMINARY AMENDMENT

Sir:

Please amend the above application as follows:

IN THE CLAIMS

Claim 3, line 1, delete "or claim 2".

Claim 4, line 1, delete "any one of claims 1 to 3" and replace by --claim 1--.

Claim 5, line 1, delete "any one of the preceding claims" and replace by
--claim 1--.

Claim 11, line 2, delete "any one of claims 1 to 6" and replace by --claim 1--.

Claim 12, line 3, delete "any one of claims 1 to 6" and replace by --as defined
above--.

AUSTIN et al
Serial No. Unassigned

Claim 13, line 2, delete "any one of claims 1 to 6" and replace by --claim 1--.

Claim 14, line 2, delete "any one of claims 1 to 6" and replace by --claim 1--.

Claim 15, line 4, delete "any one of claims 1 to 6" and replace by --claim 1--.

Claim 16, line 4, delete "any one of claims 1 to 6" and replace by --claim 1--.

AUSTIN et al
Serial No. Unassigned

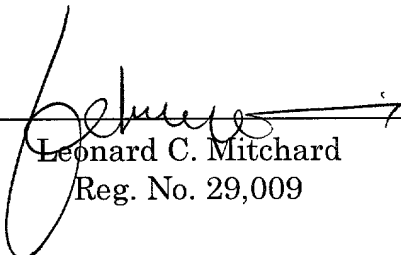
REMARKS

The above amendments have been made to place the application in a more traditional format.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: _____


Leonard C. Mitchard
Reg. No. 29,009

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Applicant: **Astra Pharmaceuticals Ltd.**
Home Park
Kings Langley
Herts WD4 8DH
United Kingdom

Title: **NOVEL COMPOUNDS**

Reference: F 2019

Inventors: Andrew Baxter
Elizabeth Kinchin
Roger Bonnert
Fraser Hunt
Paul Willis
Rupert Austin

NOVEL COMPOUNDS

The present invention relates to certain thiazolopyrimidine compounds, processes and intermediates used in their preparation, pharmaceutical compositions containing them and their use in therapy.

The compound 2,7-diamino-5-methylmercapto-thiazolo[4,5-*d*]pyrimidine is known from J. Amer. Chem. Soc., 73, 4226 – 4227 (1951).

Chemokines play an important role in immune and inflammatory responses in various diseases and disorders, including asthma and allergic diseases, as well as autoimmune pathologies such as rheumatoid arthritis and atherosclerosis. These small secreted molecules are a growing superfamily of 8-14 kDa proteins characterised by a conserved four cysteine motif. The chemokine superfamily can be divided into two main groups exhibiting characteristic structural motifs, the Cys-X-Cys (C-X-C) and Cys-Cys (C-C) families. These are distinguished on the basis of a single amino acid insertion between the NH-proximal pair of cysteine residues and sequence similarity.

The C-X-C chemokines include several potent chemoattractants and activators of neutrophils such as interleukin-8 (IL-8) and neutrophil-activating peptide 2 (NAP-2).

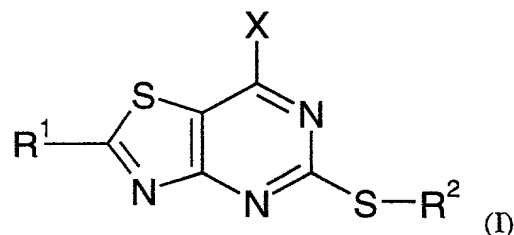
The C-C chemokines include potent chemoattractants of monocytes and lymphocytes but not neutrophils such as human monocyte chemotactic proteins 1-3 (MCP-1, MCP-2 and MCP-3), RANTES (Regulated on Activation, Normal T Expressed and Secreted), eotaxin and the macrophage inflammatory proteins 1 α and 1 β (MIP-1 α and MIP-1 β).

Studies have demonstrated that the actions of the chemokines are mediated by subfamilies of G protein-coupled receptors, among which are the receptors designated CCR1, CCR2, CCR2A, CCR2B, CCR3, CCR4, CCR5, CCR6, CCR7, CCR8, CCR9, CCR10, CXCR1, CXCR2, CXCR3 and CXCR4. These receptors represent good targets for drug

development since agents which modulate these receptors would be useful in the treatment of disorders and diseases such as those mentioned above.

In accordance with the present invention, there is therefore provided a compound of

5 general formula



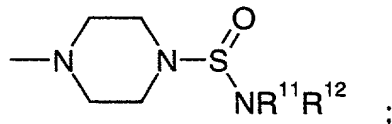
wherein R^1 represents a hydrogen atom, or a group $-NR^3R^4$;

R^3 and R^4 each independently represent a hydrogen atom, or a 4-piperidiny, C_3 - C_6

10 cycloalkyl or C_1 - C_8 alkyl group, which latter two groups may be optionally substituted by one or more substituent groups independently selected from halogen atoms and $-NR^5R^6$, $-CONR^5R^6$, $-OR^7$, $-COOR^7$, $-NR^8COR^9$, $-SR^{10}$, $-SO_2R^{10}$, $-SO_2NR^5R^6$, $-NR^8SO_2R^9$, morpholinyl, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, tetrahydrofuranyl and aryl groups, wherein an aryl substituent group may be a phenyl, naphthyl, thienyl, pyridinyl, imidazolyl or

15 indolyl group, each of which may be optionally substituted by one or more substituents independently selected from halogen atoms and cyano, nitro, $-NR^5R^6$, $-CONR^5R^6$, $-OR^7$, $-NR^8COR^9$, $-SO_2NR^5R^6$, $-NR^8SO_2R^9$, C_1 - C_6 alkyl and trifluoromethyl groups, or R^3 and R^4 together with the nitrogen atom to which they are attached form a 4- to 7-membered saturated heterocyclic ring system, which ring system may be optionally

20 substituted by one or more substituent groups independently selected from



$-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{COOR}^{10}$, $-\text{NR}^8\text{COR}^9$, and $\text{C}_1\text{-C}_6$ alkyl optionally substituted by one or more substituents independently selected from halogen atoms and $-\text{NR}^{11}\text{R}^{12}$ and $-\text{OR}^7$ groups;

X represents a group $-\text{OH}$ or $-\text{NR}^{13}\text{R}^{14}$;

5 R^{13} and R^{14} each independently represent a hydrogen atom, a 4-piperidinyl group optionally substituted by a $\text{C}_1\text{-C}_4$ alkylphenyl substituent group, or a $\text{C}_3\text{-C}_7$ carbocyclic, $\text{C}_1\text{-C}_8$ alkyl, $\text{C}_2\text{-C}_6$ alkenyl or $\text{C}_2\text{-C}_6$ alkynyl group, which latter four groups may be optionally substituted by one or more substituent groups independently selected from halogen atoms and $-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{COOR}^7$, $-\text{NR}^8\text{COR}^9$, $-\text{SR}^{10}$,
10 $-\text{SO}_2\text{R}^{10}$, $-\text{SO}_2\text{NR}^5\text{R}^6$, $-\text{NR}^8\text{SO}_2\text{R}^9$, morpholinyl, $\text{C}_1\text{-C}_4$ alkyl, $\text{C}_3\text{-C}_6$ cycloalkyl and aryl groups, wherein an aryl substituent group may be a phenyl, naphthyl, thienyl, pyridinyl, imidazolyl or indolyl group, each of which may be optionally substituted by one or more substituents independently selected from halogen atoms and cyano, nitro, $-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{NR}^8\text{COR}^9$, $-\text{SO}_2\text{NR}^5\text{R}^6$, $\text{NR}^8\text{SO}_2\text{R}^9$, $\text{C}_1\text{-C}_6$ alkyl and
15 trifluoromethyl groups, or R^{13} and R^{14} together with the nitrogen atom to which they are attached form a 4- to 7-membered saturated heterocyclic ring system, which ring system may be optionally substituted by one or more substituent groups independently selected from $-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{COOR}^7$, $-\text{NR}^8\text{COR}^9$, and $\text{C}_1\text{-C}_6$ alkyl optionally substituted by one
20 or more substituents independently selected from halogen atoms and phenyl, $-\text{NR}^{11}\text{R}^{12}$ and $-\text{OR}^7$ groups;

R^2 represents a $\text{C}_1\text{-C}_6$ alkyl or $\text{C}_2\text{-C}_6$ alkenyl group optionally substituted by a phenyl or phenoxy group, wherein the phenyl or phenoxy group may itself be optionally substituted by one or more substituents independently selected from halogen atoms and nitro,
25 $\text{C}_1\text{-C}_6$ alkyl, trifluoromethyl, $-\text{OR}^7$, $-\text{C}(\text{O})\text{R}^7$, $-\text{SR}^{10}$, $-\text{NR}^{15}\text{R}^{16}$ and phenyl groups;
 R^5 and R^6 each independently represent a hydrogen atom or a $\text{C}_1\text{-C}_6$ alkyl or phenyl group, each of which may be optionally substituted by one or more substituent groups independently selected from halogen atoms, phenyl, $-\text{OR}^{17}$ and $-\text{NR}^{15}\text{R}^{16}$, or
 R^5 and R^6 together with the nitrogen atom to which they are attached form a 4- to

30 7-membered saturated heterocyclic ring system optionally comprising a further heteroatom

selected from oxygen and nitrogen atoms, which ring system may be optionally substituted by one or more substituent groups independently selected from phenyl, $-OR^{17}$, $-COOR^{17}$, $-NR^{15}R^{16}$, $-CONR^{15}R^{16}$, $-NR^{15}COR^{16}$, $-SONR^{15}R^{16}$, and C_1 - C_6 alkyl optionally substituted by one or more substituents independently selected from halogen atoms and $-NR^{15}R^{16}$ and $-OR^{17}$ groups;

R^7 and R^9 each independently represent a hydrogen atom or a C_1 - C_6 , particularly C_1 - C_4 , alkyl (e.g. methyl, ethyl, propyl, butyl, pentyl or hexyl) or phenyl group, each of which may be optionally substituted by one or more (e.g. one, two, three or four) substituent groups independently selected from halogen atoms (e.g. fluorine, chlorine, bromine or iodine), phenyl, $-OR^{17}$ and $-NR^{15}R^{16}$; and each of R^8 , R^{10} , R^{11} , R^{12} , R^{15} , R^{16} and R^{17} independently represents a hydrogen atom or a C_1 - C_6 , particularly C_1 - C_4 , alkyl (e.g. methyl, ethyl, propyl, butyl, pentyl or hexyl) or phenyl group; with the proviso that when R^1 and X both represent $-NH_2$, then R^2 does not represent a methyl group;

or a pharmaceutically acceptable salt or solvate thereof.

In the context of the present specification, unless otherwise indicated, an alkyl or alkenyl group or an alkyl or alkenyl moiety in a substituent group may be linear or branched.

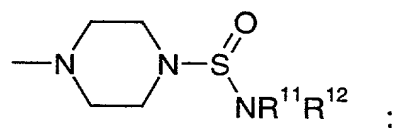
Where a substituent in an alkenyl group is a phenoxy group, the phenoxy group is not attached to an unsaturated carbon atom. A carbocyclic group is a saturated hydrocarbyl group that may be monocyclic or polycyclic (e.g. bicyclic). Similarly, a saturated heterocyclic ring system may be monocyclic or polycyclic (e.g. bicyclic).

In formula (I) above, the group R^1 represents a hydrogen atom, or a group $-NR^3R^4$.

Particularly advantageous compounds of formula (I) are those in which R^1 represents a group $-NR^3R^4$.

Preferably, R^3 and R^4 each independently represent a hydrogen atom, or a 4-piperidinyl, C_3 - C_6 cycloalkyl (i.e. cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl) or C_1 - C_8 , particularly C_1 - C_6 , alkyl group (e.g. methyl, ethyl, propyl, isopropyl, butyl, isobutyl,

t-butyl, pentyl, hexyl, heptyl or octyl), which latter two groups may be optionally substituted by one, two, three or four substituent groups independently selected from halogen atoms (e.g. fluorine, chlorine, bromine or iodine) and $-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{COOR}^7$, $-\text{NR}^8\text{COR}^9$, $-\text{SR}^{10}$, $-\text{SO}_2\text{R}^{10}$, $-\text{SO}_2\text{NR}^5\text{R}^6$, $-\text{NR}^8\text{SO}_2\text{R}^9$,
 5 morpholinyl, C_1 - C_4 alkyl (e.g. methyl, ethyl, propyl, isopropyl, butyl or t-butyl), C_3 - C_6 cycloalkyl (i.e. cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl), tetrahydrofuranyl and aryl groups, wherein an aryl substituent group may be a phenyl, naphthyl, thienyl, pyridinyl, imidazolyl or indolyl group, each of which may be optionally substituted by one, two, three or four substituents independently selected from halogen atoms (e.g. fluorine,
 10 chlorine, bromine or iodine) and cyano, nitro, $-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{NR}^8\text{COR}^9$, $-\text{SO}_2\text{NR}^5\text{R}^6$, $-\text{NR}^8\text{SO}_2\text{R}^9$, C_1 - C_6 , particularly C_1 - C_4 , alkyl (e.g. methyl, ethyl, propyl, butyl, pentyl or hexyl) and trifluoromethyl groups, or R^3 and R^4 together with the nitrogen atom to which they are attached form a 4- to 7-membered saturated heterocyclic ring system, which ring system may be optionally
 15 substituted by one, two or three substituent groups independently selected from



$-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{COOR}^{10}$, $-\text{NR}^8\text{COR}^9$, and C_1 - C_6 , particularly C_1 - C_4 , alkyl (e.g. methyl, ethyl, propyl, butyl, pentyl or hexyl) optionally substituted by one, two or three substituents independently selected from halogen atoms (e.g. fluorine,
 20 chlorine, bromine or iodine) and $-\text{NR}^{11}\text{R}^{12}$ and $-\text{OR}^7$ groups.

Particularly advantageous compounds of formula (I) are those in which R^3 and R^4 each independently represent a hydrogen atom, or a C_1 - C_6 alkyl group substituted by a $-\text{CONR}^5\text{R}^6$ or imidazolyl (e.g. 1*H*-imidazol-4-yl) group.

25 Preferably, R^2 represents a C_1 - C_6 alkyl or C_2 - C_6 alkenyl group optionally substituted by a phenyl or phenoxy group, wherein the phenyl or phenoxy group may itself be optionally

substituted by one, two, three or four substituents independently selected from halogen atoms (e.g. fluorine, chlorine, bromine or iodine) and nitro, C₁-C₆, particularly C₁-C₄, alkyl (e.g. methyl, ethyl, propyl, butyl, pentyl or hexyl), trifluoromethyl, -OR⁷, -C(O)R⁷, -SR¹⁰, -NR¹⁵R¹⁶ and phenyl groups.

5

Particularly advantageous compounds of formula (I) are those in which R² represents a C₁-C₆ alkyl group optionally substituted by a phenyl, halophenyl (e.g. 2,3-difluorophenyl) or -OR⁷ (e.g. phenoxy) group.

- 10 Preferably, R⁵ and R⁶ each independently represent a hydrogen atom or a C₁-C₆, particularly C₁-C₄, alkyl or phenyl group, each of which may be optionally substituted by one, two, three or four substituent groups independently selected from halogen atoms (e.g. fluorine, chlorine, bromine or iodine), phenyl, -OR¹⁷ and -NR¹⁵R¹⁶, or R⁵ and R⁶ together with the nitrogen atom to which they are attached form a 4- to
- 15 7-membered saturated heterocyclic ring system optionally comprising a further heteroatom selected from oxygen and nitrogen atoms (e.g. one or two oxygen and/or nitrogen atoms), which ring system may be optionally substituted by one, two or three substituent groups independently selected from phenyl, -OR¹⁷, -COOR¹⁷, -NR¹⁵R¹⁶, -CONR¹⁵R¹⁶, -NR¹⁵COR¹⁶, -SONR¹⁵R¹⁶, and C₁-C₆, particularly C₁-C₄, alkyl (e.g. methyl, ethyl,
- 20 propyl, butyl, pentyl or hexyl) optionally substituted by one, two or three substituents independently selected from halogen atoms (e.g. fluorine, chlorine, bromine or iodine) and -NR¹⁵R¹⁶ and -OR¹⁷ groups.

- Preferably, R¹³ and R¹⁴ each independently represent a hydrogen atom, a 4-piperidinyl
- 25 group optionally substituted by a C₁-C₄ alkylphenyl substituent group, or a C₃-C₇ carbocyclic, C₁-C₈, particularly C₁-C₆, alkyl (e.g. methyl, ethyl, propyl, isopropyl, butyl, isobutyl, t-butyl, pentyl, hexyl, heptyl or octyl), C₂-C₆ alkenyl (ethenyl, propenyl, butenyl, pentenyl or hexenyl) or C₂-C₆ alkynyl (ethynyl, propynyl, butynyl, pentynyl or hexynyl) group, which latter four groups may be optionally substituted by one, two, three or four
- 30 substituent groups independently selected from halogen atoms (e.g. fluorine, chlorine,

bromine or iodine) and $-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{COOR}^7$, $-\text{NR}^8\text{COR}^9$, $-\text{SR}^{10}$, $-\text{SO}_2\text{R}^{10}$, $-\text{SO}_2\text{NR}^5\text{R}^6$, $-\text{NR}^8\text{SO}_2\text{R}^9$, morpholinyl, C_1 - C_4 alkyl (e.g. methyl, ethyl, propyl, isopropyl, butyl or t-butyl), C_3 - C_6 cycloalkyl (i.e. cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl), and aryl groups, wherein an aryl substituent group may be a phenyl, naphthyl, thienyl, pyridinyl, imidazolyl or indolyl group, each of which may be optionally substituted by one, two, three or four substituents independently selected from halogen atoms (e.g. fluorine, chlorine, bromine or iodine) and cyano, nitro, $-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{NR}^8\text{COR}^9$, $-\text{SO}_2\text{NR}^5\text{R}^6$, $\text{NR}^8\text{SO}_2\text{R}^9$, C_1 - C_6 , particularly C_1 - C_4 , alkyl (e.g. methyl, ethyl, propyl, butyl, pentyl or hexyl) and trifluoromethyl groups, or R^{13} and R^{14} together with the nitrogen atom to which they are attached form a 4- to 7-membered saturated heterocyclic ring system, which ring system may be optionally substituted by one, two or three substituent groups independently selected from $-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{COOR}^7$, $-\text{NR}^8\text{COR}^9$, and C_1 - C_6 , particularly C_1 - C_4 , alkyl (e.g. methyl, ethyl, propyl, butyl, pentyl or hexyl) optionally substituted by one, two or three substituents independently selected from halogen atoms (e.g. fluorine, chlorine, bromine or iodine) and phenyl, $-\text{NR}^{11}\text{R}^{12}$ and $-\text{OR}^7$ groups;

Particularly advantageous compounds of formula (I) are those in which one of R^{13} and R^{14} represents a hydrogen atom and the other of R^{13} and R^{14} represents a C_1 - C_6 alkyl group substituted by an $-\text{OR}^7$ group, e.g. $-\text{CH}(\text{CH}_2\text{CH}_3)\text{CH}_2\text{OH}$, $-\text{C}(\text{CH}_3)_2\text{CH}_2\text{OH}$ or $\text{CH}(\text{CH}_2\text{CH}(\text{CH}_3)_2)\text{CH}_2\text{OH}$.

Particularly preferred compounds of the invention include:

(2*R*)-2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,
 (S)-2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,
 2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 5-[[3-Phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 (±)-2-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,
 2-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethanol,

- 5-(Pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[[3-(Dimethylamino)propyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 5 2-[[2-(Diethylamino)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[[2-(Dimethylamino)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[(3-Hydroxypropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[[2-(Acetylaminomethyl)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 (±)-2-[(2,3-Dihydroxypropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 10 2-[[2-(4-Morpholinyl)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[(2-Methoxyethyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[(1-Methylethyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-(Cyclopropylamino)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 (±)-2-[(2-Hydroxypropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 15 2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[(2-Hydroxy-2-methylpropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[(2-Hydroxyethyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 (2*S*,3*R*)-3-Hydroxy-2-[(7-oxo-5-(pentylthio)-4*H*-thiazolo[4,5-*d*]pyrimidin-2-yl)-
 amino)butanamide,
 20 *N*⁷-[3-(Dimethylamino)propyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
*N*⁷-[2-(Diethylamino)ethyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
*N*⁷-[2-(Dimethylamino)ethyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 3-[(2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl)amino]-1-propanol,
*N*⁷-Cyclohexyl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 25 (±)-3-[(2-Amino-5-((phenylmethyl)thio)thiazolo[4,5-*d*]pyrimidin-7-yl)amino]-1,2-
 propanediol,
*N*⁷-(2-Methoxyethyl)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 5-(Pentylthio)-*N*⁷-propylthiazolo[4,5-*d*]pyrimidine-2,7-diamine,
*N*⁷-Cyclopentyl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 30 *N*⁷-Cyclopropyl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

- N^7 -(2-Methylpropyl)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 (±)-1-[(2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl)amino]-2-propanol,
 (exo)- N^7 -Bicyclo[2.2.1]hept-2-yl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 2-[2-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethoxy]ethanol,
 5 (±)- N^7 -(2-Methylbutyl)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 1-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-2-propanol,
 N^7 -(2-Aminophenyl)methyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 2-Amino-5-[(2-phenoxyethyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 (*E*)-2-Amino-5-[(3-phenyl-2-propenyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 10 2-Amino-5-[[3-[2,4-bis(1,1-dimethylethyl)phenoxy]propyl]thio]thiazolo[4,5-*d*]pyrimidin-
 7(4*H*)-one,
 2-Amino-5-[[[(4-trifluoromethyl)phenyl]methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(3,5-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(2,4-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 15 2-Amino-5-[[[(3,4-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(3,5-dibromophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(2-nitrophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(2-fluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(2-iodophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 20 2-Amino-5-[[[(3-chlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(2-chlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(4-chloro-2-nitrophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(3-chloro-4-methoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(2,3-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 25 2-Amino-5-[[[(3,5-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(2,4-bis(trifluoromethyl)phenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-
 one,
 2-Amino-5-[[[(2-bromophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[[(2,3,4-trifluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 30 2-Amino-5-[[[(3-bromophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,

- 2-Amino-5-[[2-(2-fluoro-3-methylphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 3-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2,2-dimethyl-1-
 propanol,
 (±)-α-[[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-
 5 yl]amino]methyl]benzenemethanol,
 (*R*)-β-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-
 yl]amino]benzenepropanol,
 2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethanol,
 (2*R*)-2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]4-
 10 methylpentanol,
 (±)-1-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,
 (±)-β-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-
 chlorobenzenepropanol,
 (±)-3-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,2-
 15 propanediol,
 2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]propylamino]ethanol,
 (±)-1-[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-pyrrolidinol,
 (±)-1-[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinol,
 1-[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-piperidinol,
 20 3-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2,2-
 dimethyl-1-propanol,
 (±)-2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-
 1-butanol,
 (±)-α-[[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-
 25 amino]methyl]benzenemethanol,
 4-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-
 butanol,
 6-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-
 hexanol,

- 4-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]cyclohexanol,
- (*R*)-β-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]benzenepropanol,
- 5 (±)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
- 2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]ethanol,
- (2*R*)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]-4-methylpentanol,
- 10 (±)-1-Amino-3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,
- (±)-1-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,
- 15 2-[[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]-2-ethyl-1,3-propanediol,
- (±)-β-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-chlorobenzenepropanol,
- (±)-3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-20 1,2-propanediol,
- 2-[[2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethyl]amino]ethanol,
- 3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
- 25 (±)-α-[[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]-3,4-dichlorobenzenepropanol,
- 1-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-2-propanol,
- 2-[[2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethoxy]ethanol,
- 30

- 5-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,
- (2*S*)-2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-(methylthio)-1-butanol,
- 5 2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]butylamino]ethanol,
- 2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]propylamino]ethanol,
- 2,2'-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]imino]bisethanol,
- 10 2-[[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-(2-hydroxyethyl)amino]methyl]phenol,
- 3-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-(2-hydroxyethyl)amino]-1-propanol,
- 15 (±)-1-[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-pyrrolidinol,
- (*trans*)-1-[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-hydroxy-*L*-proline phenylmethyl ester,
- (±)-1-[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinemethanol,
- 20 (±)-1-[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinol,
- (2*S*)-1-[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-2-pyrrolidinemethanol,
- 25 1-[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-piperidinol,
- (2*R*)-2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,
- (2*S*)-2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,
- 30

(2*R*)-2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,3-propanediol,

5 2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

1-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-2-propanol,

5-[[2,3-Difluorophenyl)methyl]thio]-*N*⁷-(2-fluoroethyl)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

(1*R-trans*) 2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-cyclopentanol,

15 (1*S-trans*) 2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-cyclopentanol,

2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-Methyl-2-[[2-(methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-[[2-[[5-[[2,3-Difluorophenyl)methyl]thio]-2-[(phenylmethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

5-[[2,3-Difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,

(±)-2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

(1*S,2S*)-2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-cyclohexanol,

(±)-2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol,

(2*R*)-2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

5 (±)-1-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,

2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1,3-propanediol,

1-[[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]-cyclohexanol,

(2*R*)-2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-(2-aminoethyl)amino]-1-ethanol,

15 2-[2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethoxy]-1-ethanol,

(α*S*)-α-[(1*R*)-1-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]methylamino]ethyl]-benzenemethanol,

1-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-piperidinol,

5-[[[(2,3-Difluorophenyl)methyl]thio]-*N*⁷-ethyl-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

5-[[[(2,3-Difluorophenyl)methyl]thio]-*N*⁷-(2-propenyl)-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

(1*S*,2*S*)-2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-phenyl-1,3-propanediol,

2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,3-propanediol,

2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol,

(±)-5-[[[(2,3-Difluorophenyl)methyl]thio]-*N*⁷-(2-methoxy-1-methylethyl)-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

*N*⁷-Cyclopropyl-5-[[[(2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

5 (±)-2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

4-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

5-[[[(2,3-Difluorophenyl)methyl]thio]-*N*⁷-[2-(1*H*-imidazol-4-yl)ethyl]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

10 (±)-*N*-[5-[[[(2,3-Difluorophenyl)methyl]thio]-7-[(2-hydroxy-1,1-dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-2-yl]-serine, methyl ester,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(1-methylethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

15 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-(ethylamino)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(1*H*-indol-3-yl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(1-naphthalenylmethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(1,2-diphenylethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(2,2,2-trifluoroethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

25 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[[3,4,5-trimethoxyphenyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(1,1-dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

- 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(4-methylcyclohexyl)amino]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 5 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-7-[(2-hydroxy-1,1-
dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide,
- 2-[[2-[[2-(4-Aminophenyl)ethyl]amino]-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(2-fluoroethyl)amino]thiazolo[4,5-
10 *d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 2-[[2-(Cyclopropylamino)-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-
yl]amino]-2-methyl-1-propanol,
- (±)-2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-7-[(2-hydroxy-1,1-
dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-pentanol,
- 15 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(2-
hydroxyethoxy)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- N*-[5-[[[(2,3-Difluorophenyl)methyl]thio]-6,7-dihydro-7-oxo-thiazolo[4,5-*d*]pyrimidin-2-
yl]-DL-serine, methyl ester,
- 5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(1-methylethyl)amino]-thiazolo[4,5-*d*]pyrimidin-
20 7(4*H*)-one,
- 5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(1*H*-indol-3-yl)ethyl]amino]-thiazolo[4,5-
d]pyrimidin-7(4*H*)-one,
- 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-6,7-dihydro-7-oxo-thiazolo[4,5-*d*]pyrimidin-2-
yl]amino]-acetamide,
- 25 2-[[2-(4-Aminophenyl)ethyl]amino]-5-[[[(2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-
d]pyrimidin-7(4*H*)-one,
- 5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(2-fluoroethyl)amino]-thiazolo[4,5-*d*]pyrimidin-
7(4*H*)-one,
- 5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(2-hydroxyethoxy)ethyl]amino]-thiazolo[4,5-
30 *d*]pyrimidin-7(4*H*)-one,

2-[[2-(Cyclohexylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[2-[(1,1-Dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

5 *N*-[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]-DL-alanine, methyl ester,

4-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-cyclohexanol,

2-Methyl-2-[[2-[(4-phenylbutyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[[(tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-Methyl-2-[[2-[(1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

15 2-[[2-[[2-(4-Aminophenyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

N-[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]-L-valine, ethyl ester,

(2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-4-methyl-pentanamide,

2-Methyl-2-[[2-[(2-phenylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-[[2-[[4-Aminophenyl)methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

25 2-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-[[2-[(2-Fluoroethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-Methyl-2-[[2-[[3-nitrophenyl)methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

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(αR)- α -[(1*S*)-1-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-
 [(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenemethanol,
 2-Methyl-2-[[5-[(phenylmethyl)thio]-2-[(3,4,5-
 trimethoxyphenyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
 5 2-Methyl-2-[[2-[(1*R*-trans)-(2-phenylcyclopropyl)amino]-5-
 [(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
 2-[[2-[[2-(1*H*-Indol-3-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-
 yl]amino]-2-methyl-1-propanol,
 2-[[2-[(1,1-Dimethylpropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-
 10 yl]amino]-2-methyl-1-propanol,
 (\pm)-2-Methyl-2-[[2-[(1-methylbutyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-1-propanol,
 (\pm)-2-Methyl-2-[[2-[(1-methylhexyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-1-propanol,
 15 2-[[2-[[2-(2-Aminophenyl)methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-
 yl]amino]-2-methyl-1-propanol,
 2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
d]pyrimidin-2-yl]amino]-1,3-propanediol,
 2-[[2-[[2-(Ethylthio)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-
 20 yl]amino]-2-methyl-1-propanol,
 (2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
d]pyrimidin-2-yl]amino]-3,3-dimethyl-1-butanol,
 (αS)- α -[(1*R*)-1-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-
 [(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-2-methoxyethyl]-
 25 benzenemethanol,
 2-[[2-(Ethylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-
 1-propanol,
 2-[[2-[[[3-Fluoro-5-(trifluoromethyl)phenyl]methyl]amino]-5-
 [(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

- (±)-2-Methyl-2-[[2-[(1-methylpropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
- 2-[[2-[[4-Methoxyphenyl)methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 5 2-[[2-[(2-Hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 2-[[2-[(Diphenylmethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 10 (2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-butanol,
- 2-[[2-[(2,2-Diethoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 15 4-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-butanol,
- (1*S*,2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-cyclohexanol,
- (±)-2-[[2-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 20 2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- (±)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-pentanol,
- 25 2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide,
- (±)-2-[[2-[[1-(4-Fluorophenyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-propanol,
- (1*R*,2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-cyclohexanol,
- 30

(αS)- α -[(1*R*)-1-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenemethanol,
 (\pm)-2-[[2-(Methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

5 (2*R*)-4-Methyl-2-[[2-(methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,

N-[2-(Methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester,

(\pm)-2-[[5-[(Phenylmethyl)thio]-2-[[[(tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

(\pm)-2-[[5-[(Phenylmethyl)thio]-2-[[[(tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(2*R*)-4-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[[(tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,

15 *N*-[5-[(Phenylmethyl)thio]-2-[[[(tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester,

(\pm)-2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(\pm)-4-[2-[[7-[[1-(Hydroxymethyl)propyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide,

(\pm)-4-[2-[[7-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide,

4-[2-[[7-[[1-(1*R*)-1-(Hydroxymethyl)-3-methylbutyl]amino]-5-

[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide,

25 (\pm)-4-[2-[[7-[(2-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide,

*N*⁷-Ethyl-*N*²-[2-(1*H*-imidazol-4-yl)ethyl]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

*N*²-[2-(1*H*-Imidazol-4-yl)ethyl]-5-[(phenylmethyl)thio]-*N*⁷-(3-pyridinylmethyl)-

30 thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

- (±)-2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,
- (±)-2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
- 5 (2*R*)-2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,
- (±)-1-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,
- 5-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,
- 10 1-[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-(phenylmethyl)-4-piperidinol,
- (±)-1-[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinecarboxamide,
- 15 2-[Ethyl[2-[[2-(1*H*-imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol,
- N*²-[2-(1*H*-Imidazol-4-yl)ethyl]-*N*⁷,*N*⁷-dimethyl-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
- N*⁷-[2-(Diethylamino)ethyl]-*N*⁷-ethyl-*N*²-[2-(1*H*-imidazol-4-yl)ethyl]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
- 20 [(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
- N*²-(2-Phenoxyethyl)-5-[(phenylmethyl)thio]-*N*⁷-(3-pyridinylmethyl)-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
- N*²-(2-Phenoxyethyl)-*N*⁷-[1-(phenylmethyl)-4-piperidinyl]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
- 25 2-Methyl-2-[[2-[(2-phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
- (±)-2-[[2-[(2-Phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
- (±)-4-Methyl-2-[[2-[(2-phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,
- 30

1-[2-[(2-Phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-(phenylmethyl)-4-piperidinol,

2-[[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

5 2-[[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(2*R*)-2-[[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

10 *N*-[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester,

(2*R*)-2-[[2-[[1-(Hydroxymethyl)butyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

N-[2-[[1-(Hydroxymethyl)butyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester,

15 (±)-2-[[7-[Cyclohexyl(2-hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-pentanol,

2-[2-[[7-(Ethylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethoxy]-1-ethanol,

20 2-[2-[[7-[(1-Methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethoxy]-1-ethanol,

(±)-2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

25 (2*R*)-2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

2-[Cyclohexyl-[2-[[2-(2-hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol,

30 (±)-2-[[5-[(Phenylmethyl)thio]-2-(4-piperidinylamino)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(±)-*N*-[2-[[7-[[1-(Hydroxymethyl)propyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide,

(±)-*N*-[2-[[7-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide,

5 *N*-[2-[[7-[(2-Hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide,

N-[2-[[7-[(1*R*)-1-(Hydroxymethyl)-3-methylbutyl]amino]-5-

[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide,

*N*⁷-(2-Methoxyethyl)-5-[(phenylmethyl)thio]-*N*²-[2-(2-thienyl)ethyl]thiazolo[4,5-

10 *d*]pyrimidine-2,7-diamine,

*N*⁷-(2-Ethoxyethyl)-5-[(phenylmethyl)thio]-*N*²-[2-(2-thienyl)ethyl]thiazolo[4,5-

d]pyrimidine-2,7-diamine,

*N*⁷-(2,2-Dimethylpropyl)-5-[(phenylmethyl)thio]-*N*²-[2-(2-thienyl)ethyl]thiazolo[4,5-

d]pyrimidine-2,7-diamine,

15 (2*R*)-4-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,

(±)-1-[[5-[(Phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,

(±)-2-[[5-[(Phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

(±)-2-[[5-[(Phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(2*R*)-2-[[2-[(2-Hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

25 (±)-*N,N*-Diethyl-1-[2-[(2-hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinecarboxamide,

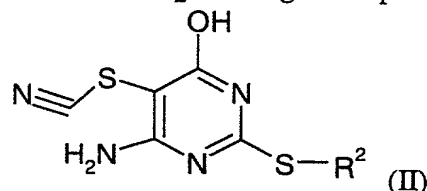
(2*R*)-2-[[2-[(3-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

(±)-2-[[2-[(3-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

(±)-2-[[2-[(3-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
 2-[[7-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide,
 5 4-[1-[7-[(4-Methylcyclohexyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]-3-azetidiny]-1-piperazinesulfonamide,
 3-[[2-[[2-(4-Morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
 2-Methyl-2-[[2-[[2-(4-morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
 10 *d*]pyrimidin-7-yl]amino]-1-propanol,
 (±)-2-[[2-[[2-(4-Morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-1-propanol,
 (2*R*)-4-Methyl-2-[[2-[[2-(4-morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-1-pentanol,
 15 2-[[2-(3,4-Dihydroxyphenyl)ethyl]amino]-5-[(phenylmethyl)thio]-thiazolo[4,5-
d]pyrimidin-7(4*H*)-one,
 (±)-2-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 and their pharmaceutically acceptable salts and solvates.

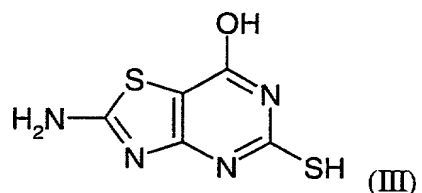
20 According to the invention there is also provided a process for the preparation of a compound of formula (I) which comprises:

(a) when X represents -OH and R¹ is NH₂, heating a compound of general formula



25 wherein R² is as defined in formula (I); or

(b) when X represents -OH and R¹ is NH₂, reacting a compound of formula

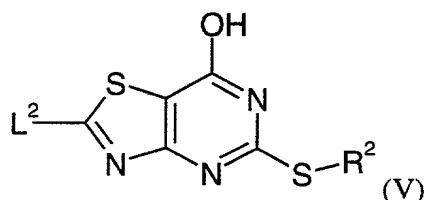


with a compound of general formula (IV), $R^2 - L^1$, wherein L^1 represents a leaving group such as a halogen atom (e.g. chlorine) and R^2 is as defined in formula (I); or

(c) when X represents $-OH$ or $-NR^{13}R^{14}$ and R^1 is a hydrogen atom, reacting a

5 corresponding compound of formula (I) in which R^1 is NH_2 , with a diazotizing agent; or

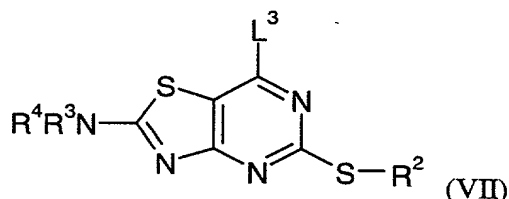
(d) when X represents $-OH$ and R^1 is a group $-NR^3R^4$, reacting a compound of general formula



wherein L^2 represents a leaving group such as a halogen atom (e.g. bromine) and R^2 is as

10 defined in formula (I), with a compound of general formula (VI), R^3R^4NH , wherein R^3 and R^4 are as defined in formula (I); or

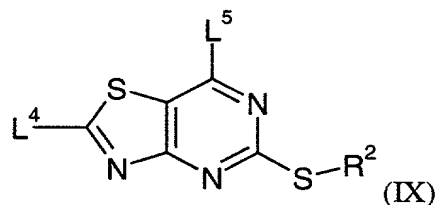
(e) when X represents $-NR^{13}R^{14}$ and R^1 represents $-NR^3R^4$, reacting a compound of general formula



15 wherein L^3 represents a leaving group such as a halogen atom (e.g. chlorine) and R^2 , R^3 and R^4 are as defined in formula (I), with a compound of general formula (VIII),

$NHR^{13}R^{14}$, wherein R^{13} and R^{14} are as defined in formula (I); or

(f) when X represents $-NR^{13}R^{14}$ and R^1 represents $-NR^3R^4$, reacting a compound of general formula



wherein L^4 is a leaving group (e.g. bromine), L^5 is a leaving group (e.g. chlorine) and R^2 is as defined in formula (I), initially with a compound of formula (VI) as defined in (d) above followed by reaction with a compound of formula (VIII) as defined in (e) above;

and optionally after (a), (b), (c), (d), (e) or (f) forming a pharmaceutically acceptable salt or solvate of the compound of formula (I).

Process (a) is conveniently carried out in the presence of a solvent or solvent mixture such as dimethylformamide/water at a temperature in the range from e.g. 50 to 150°C.

Process (b) is conveniently carried out in an organic solvent such as tetrahydrofuran or dimethyl sulphoxide/dimethylformamide mixture, optionally in the presence of a base such as potassium *tert*-butoxide or diisopropylamide.

Process (c) is conveniently carried out in an organic solvent such as tetrahydrofuran.

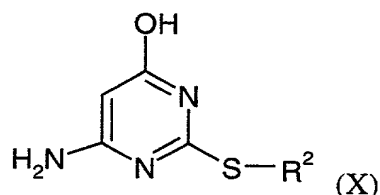
Examples of suitable diazotizing agents to use include *tert*-butyl nitrite.

Process (d) is conveniently carried out in an organic solvent such as tetrahydrofuran, e.g. at a temperature of 50°C for 5 hours.

Process (e) is conveniently carried out in an organic solvent such as tetrahydrofuran with heating for a period in the range from 1 day to 3 weeks.

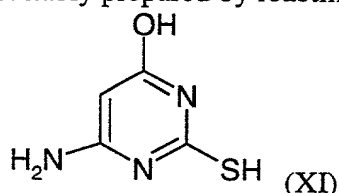
Process (f) is conveniently carried out in an organic solvent such as tetrahydrofuran or N-methylpyrrolidine at a temperature between 0° and 130°C, with a reaction time of 1 hour to 3 weeks.

Compounds of formula (II) may be readily prepared by reacting a compound of general formula



- 5 wherein R^2 is as defined above, with potassium thiocyanate and bromine in dimethylformamide/pyridine.

Compounds of formula (X) are suitably prepared by reacting a compound of formula



- 10 with a compound of formula (IV) as defined above.

- Compounds of formula (V) may be prepared by reacting a compound of formula (I) in which R^1 is NH_2 , with a diazotizing agent and a halogenating agent. The reaction is conveniently carried out in an organic solvent such as acetonitrile in the presence of a
- 15 diazotizing agent such as *tert*-butyl nitrite and a halogenating agent such as a trimethylsilyl halide.

- Compounds of formula (VII) in which L^3 is a chlorine atom may be prepared by reacting a compound of formula (I) in which X is -OH with phosphorus oxychloride in
- 20 dimethylaniline under reflux conditions.

- Compounds of formula (IX) in which L^4 represents a bromine atom and L^5 represents a chlorine atom may be prepared by reacting a compound of formula (I) in which X is -OH and R^1 is NH_2 with phosphorus oxychloride in dimethylaniline under reflux conditions,
- 25 followed by reaction with *tert*-butyl nitrite and bromoform.

Compounds of formulae (III), (IV), (VI), (VIII) and (XI) are either commercially available, are well known in the literature or may be prepared easily using known techniques.

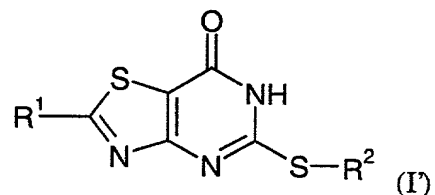
5 The compounds of formulae (V), (VII) and (IX) are novel intermediates and therefore form a further aspect of the present invention. In formula (V), L^2 is preferably a bromine atom. In formula (VII), R^3 and R^4 preferably both represent a hydrogen atom. In formula (IX), L^3 is preferably a bromine atom and L^4 is preferably a chlorine atom.

10 It will be appreciated by those skilled in the art that in the processes of the present invention certain functional groups such as hydroxyl or amino groups in the starting reagents or intermediate compounds may need to be protected by protecting groups. Thus, the preparation of the compounds of formula (I) may involve, at an appropriate stage, the removal of one or more protecting groups.

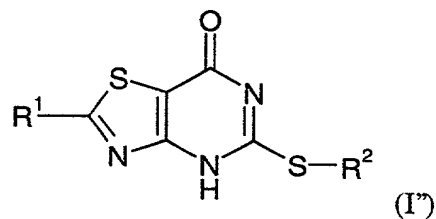
15 The protection and deprotection of functional groups is fully described in 'Protective Groups in Organic Chemistry', edited by J. W. F. McOmie, Plenum Press (1973), and 'Protective Groups in Organic Synthesis', 2nd edition, T. W. Greene & P. G. M. Wuts, Wiley-Interscience (1991).

20 The compounds of formula (I) above may be converted to a pharmaceutically acceptable salt or solvate thereof, preferably an acid addition salt such as a hydrochloride, hydrobromide, phosphate, acetate, fumarate, maleate, tartrate, citrate, oxalate, methanesulphonate or *p*-toluenesulphonate.

25 Certain compounds of formula (I) are capable of existing in stereoisomeric forms. It will be understood that the invention encompasses all geometric and optical isomers of the compounds of formula (I) and mixtures thereof including racemates. Tautomers and mixtures thereof also form an aspect of the present invention, for example tautomers of
30 general formula

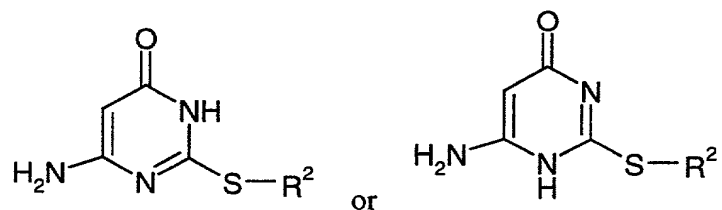
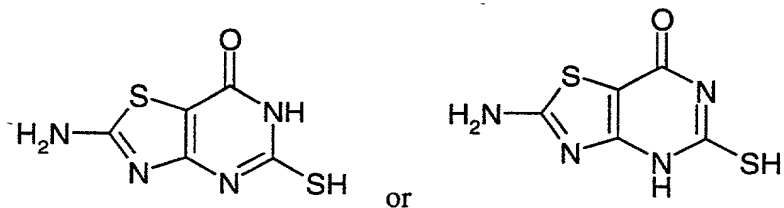
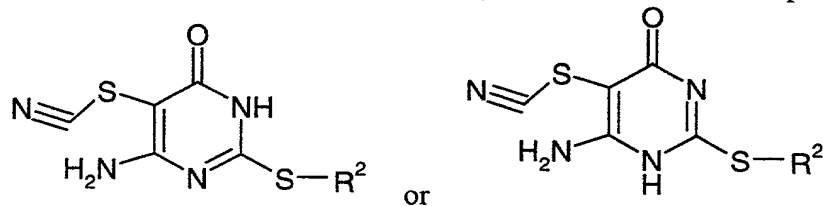


wherein R^1 and R^2 are as defined in formula (I), or of general formula

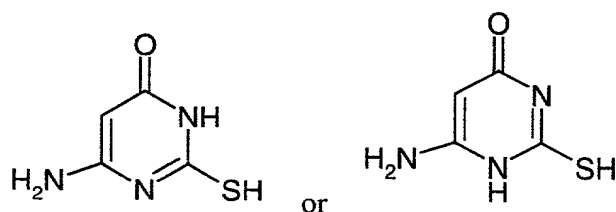


wherein R^1 and R^2 are as defined in formula (I).

Similarly, it will be understood that in the above processes tautomeric forms of the compounds of formulae (II), (III), (IX) and (X) may also be used, for example,



and



The compounds of formula (I) have activity as pharmaceuticals, in particular as modulators of chemokine receptor (especially CXCR2) activity, and may be used in the treatment
 5 (therapeutic or prophylactic) of conditions/diseases in human and non-human animals which are exacerbated or caused by excessive or unregulated production of chemokines. Examples of such conditions/diseases include:

- 10 (1) **(the respiratory tract)** obstructive airways diseases including chronic obstructive pulmonary disease (COPD) such as irreversible COPD; asthma, such as bronchial, allergic, intrinsic, extrinsic and dust asthma, particularly chronic or inveterate asthma (e.g. late asthma and airways hyper-responsiveness); bronchitis; acute, allergic, atrophic rhinitis and chronic rhinitis including rhinitis caseosa, hypertrophic rhinitis, rhinitis purulenta, rhinitis sicca and rhinitis medicamentosa; membranous rhinitis
 15 including croupous, fibrinous and pseudomembranous rhinitis and scrofulous rhinitis; seasonal rhinitis including rhinitis nervosa (hay fever) and vasomotor rhinitis; sarcoidosis, farmer's lung and related diseases, fibroid lung and idiopathic interstitial pneumonia;
- 20 (2) **(bone and joints)** rheumatoid arthritis, seronegative spondyloarthropathies (including ankylosing spondylitis, psoriatic arthritis and Reiter's disease), Behcet's disease, Sjogren's syndrome and systemic sclerosis;
- 25 (3) **(skin)** psoriasis, atopic dermatitis, contact dermatitis and other eczmatous dermatides, seborrhoetic dermatitis, Lichen planus, Pemphigus, bullous Pemphigus, Epidermolysis bullosa, urticaria, angiodermas, vasculitides, erythemas, cutaneous eosinophilias, uveitis, Alopecia areata and vernal conjunctivitis;

- (4) **(gastrointestinal tract)** Coeliac disease, proctitis, eosinophilic gastro-enteritis, mastocytosis, Crohn's disease, ulcerative colitis, food-related allergies which have effects remote from the gut, e.g., migraine, rhinitis and eczema;
- 5
- (5) **(other tissues and systemic disease)** multiple sclerosis, atherosclerosis, Acquired Immunodeficiency Syndrome (AIDS), lupus erythematosus, systemic lupus, erythematosus, Hashimoto's thyroiditis, myasthenia gravis, type I diabetes, nephrotic syndrome, eosinophilia fascitis, hyper IgE syndrome, lepromatous leprosy, Sezary syndrome and idiopathic thrombocytopenia purpura;
- 10
- (6) **(allograft rejection)** acute and chronic following, for example, transplantation of kidney, heart, liver, lung, bone marrow, skin and cornea; and chronic graft versus host disease;
- 15
- (7) cancers, especially non-small cell lung cancer (NSCLC) and squamous sarcoma;
- (8) diseases in which angiogenesis is associated with raised CXCR2 chemokine levels (e.g. NSCLC); and
- 20
- (9) cystic fibrosis, stroke, re-perfusion injury in the heart, brain, peripheral limbs and sepsis.

Thus, the present invention provides a compound of formula (I), or a pharmaceutically-acceptable salt or solvate thereof, as hereinbefore defined for use in therapy.

25

In a further aspect, the present invention provides the use of a compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as hereinbefore defined in the manufacture of a medicament for use in therapy.

30

In a still further aspect, the present invention provides the use of a compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as hereinbefore defined in the manufacture of a medicament for the treatment of human diseases or conditions in which modulation of chemokine receptor activity is beneficial.

5

In the context of the present specification, the term "therapy" also includes "prophylaxis" unless there are specific indications to the contrary. The terms "therapeutic" and "therapeutically" should be construed accordingly.

10

The invention still further provides a method of treating a chemokine mediated disease wherein the chemokine binds to a CXCR2 receptor, which comprises administering to a patient a therapeutically effective amount of a compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as hereinbefore defined.

15

The invention also provides a method of treating an inflammatory disease, especially psoriasis, in a patient suffering from, or at risk of, said disease, which comprises administering to the patient a therapeutically effective amount of a compound of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as hereinbefore defined.

20

For the above-mentioned therapeutic uses the dosage administered will, of course, vary with the compound employed, the mode of administration, the treatment desired and the disorder indicated.

25

The compounds of formula (I) and pharmaceutically acceptable salts and solvates thereof may be used on their own but will generally be administered in the form of a pharmaceutical composition in which the formula (I) compound/salt/solvate (active ingredient) is in association with a pharmaceutically acceptable adjuvant, diluent or carrier. Depending on the mode of administration, the pharmaceutical composition will preferably comprise from 0.05 to 99 %w (per cent by weight), more preferably from 0.05 to 80 %w,

still more preferably from 0.10 to 70 %w, and even more preferably from 0.10 to 50 %w, of active ingredient, all percentages by weight being based on total composition.

The present invention also provides a pharmaceutical composition comprising a compound
5 of formula (I), or a pharmaceutically acceptable salt or solvate thereof, as hereinbefore defined, in association with a pharmaceutically acceptable adjuvant, diluent or carrier.

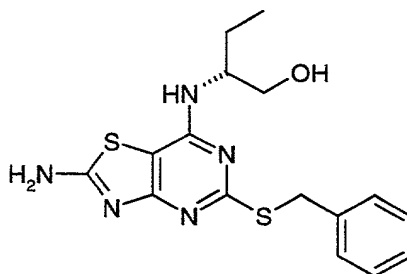
The invention further provides a process for the preparation of a pharmaceutical
composition of the invention which comprises mixing a compound of formula (I), or a
10 pharmaceutically acceptable salt or solvate thereof, as hereinbefore defined, with a pharmaceutically acceptable adjuvant, diluent or carrier.

The pharmaceutical compositions may be administered topically (e.g. to the lung and/or
airways or to the skin) in the form of solutions, suspensions, heptafluoroalkane aerosols
15 and dry powder formulations; or systemically, e.g. by oral administration in the form of tablets, capsules, syrups, powders or granules, or by parenteral administration in the form of solutions or suspensions, or by subcutaneous administration or by rectal administration in the form of suppositories or transdermally.

20 The invention will now be further illustrated by reference to the following examples. In the examples the Nuclear Magnetic Resonance (NMR) spectra were measured on a Varian Unity Inova 300 or 400 MHz spectrometer and the Mass Spectrometry (MS) spectra measured on a Finnigan Mat SSQ7000 or Micromass Platform spectrometer. Where
necessary, the reactions were performed under an inert atmosphere of either nitrogen or
25 argon. Chromatography was generally performed using Matrex Silica 60[®] (35-70 micron) or Prolabo Silica gel 60[®] (35-70 micron) suitable for flash silica gel chromatography. High pressure liquid chromatography purification was performed using either a Waters Micromass LCZ with a Waters 600 pump controller, Waters 2487 detector and Gilson FC024 fraction collector or a Waters Delta Prep 4000. The abbreviations m.p. and DMSO
30 used in the examples stand for melting point and dimethyl sulphoxide respectively.

Example 1

(2R)-2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol



(a) 7-Chloro-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-amine

2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one (0.89g) (prepared as described in Example 9), phosphorus oxychloride (12mL) and *N,N*-dimethylaniline (1.2mL) were heated at reflux for 2 hours. The cooled reaction mixture was poured onto ice and water and stirred for 2 hours. Chromatography on silica eluting with methanol/dichloromethane mixtures gave the sub-title chloride.

m.p. 217-218.5°C

MS: APCI(+ve) 309/11 (M+1)

¹H NMR: δ (DMSO) 4.38 (s,2H), 7.20-7.48 (m,5H) and 8.95 (br s,2H).

(b) (2R)-2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

The chloro compound from step (a) (0.12g) in tetrahydrofuran (3 mL) was treated with (*R*)-2-amino-1-butanol (0.56g) and the reaction mixture was heated at reflux for 5 days. Dichloromethane and dilute hydrochloric acid were added. The resulting solid was filtered off, washed with water and ether to give the title compound which was obtained containing 0.23 moles of hydrogen chloride and 0.93 moles of water. Yield 0.045g.

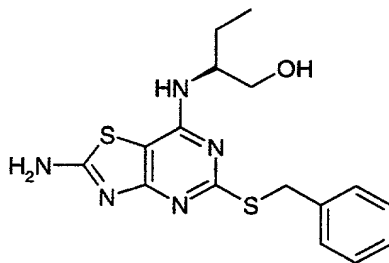
m.p. 118-121°C

MS: APCI(+ve) 362 (M+1)

¹H NMR: δ (DMSO) 0.83 (t,3H), 1.45 (m,2H), 1.65 (m,2H), 3.39 (m,2H), 4.31 (q,2H), 4.65 (t,1H), 6.91 (d,1H), 7.17-7.44 (m,5H) and 8.00 (s,2H).

5 Example 2

(S)-2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-d]pyrimidin-7-yl]amino]-1-butanol



Prepared by the method of Example 1(b) from the chloro compound of Example 1(a) and
10 (S)-2-amino-1-butanol. Obtained as a solid containing 0.7 moles of hydrogen chloride.

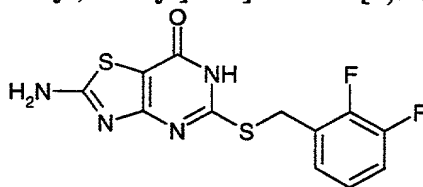
mp 204-208°C

MS: APCI(+ve) 362 (M+1)

¹H NMR: δ (DMSO) 0.82 (t,3H), 1.37-1.74 (m,2H), 3.36-3.52 (m,2H), 4.10 (br s,1H),
15 4.41 (q,2H), 7.20-7.46 (m,5H), 7.63 (br s,1H) and 8.42 (s,2H).

Example 3

2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-d]pyrimidin-7(4H)-one



20 a) 2-Amino-5-mercapto-thiazolo[4,5-d]pyrimidin-7(4H)-one

Aluminium tribromide (1M in CH₂Br₂, 15.2ml) was added to a solution of the product of Example 9 (2.0g) in toluene (25ml) and the reaction mixture heated at 60°C for 6 hours.

On cooling to room temperature, water (40ml) was added and the resulting solid isolated by filtration then triturated with hot ethanol to afford the sub-title compound (0.8g).

MS: (APCI) 201 ($M+H^+$, 100%)

5

b) 2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

Potassium t-butoxide solution (0.45mL of 1M in tetrahydrofuran) was added to a stirred solution of the product of step a) (0.09g) and 2,3-difluorobenzyl bromide in dimethyl sulphoxide (2mL). After stirring for 3 days, the reaction mixture was poured onto water.

10 The title compound was obtained. Yield 0.065g.

m.p. 310-313°C

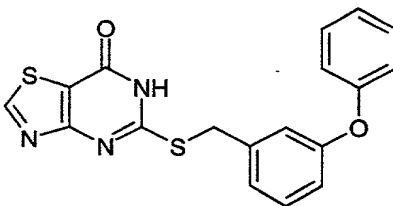
MS: APCI(+ve) 327 ($M+1$)

1H NMR: δ (DMSO) 4.48 (s,2H), 7.18-7.45 (m,3H), 8.20 (s,2H) and 12.62 (s,1H).

15

Example 4

5-[(3-Phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

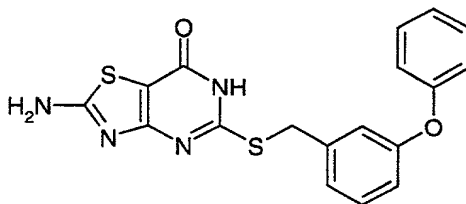


20 2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one (0.3g) (product of Example 5) was added over 90 minutes to a solution of t-butyl nitrite (0.17mL) in tetrahydrofuran (3mL) at 65°C. After a further 3.5 hours at 65°C, the solvent was evaporated and the residue chromatographed on silica eluting with methanol/dichloromethane mixtures to give the title compound. Yield 0.071g.

25 m.p. 197-198°C

MS: APCI(+ve) 368 ($M+1$)

1H NMR: δ (DMSO) 4.49 (s,2H), 6.86-7.38 (m,9H), 9.58 (s,1H) and 13.11 (s,1H).

Example 5**2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

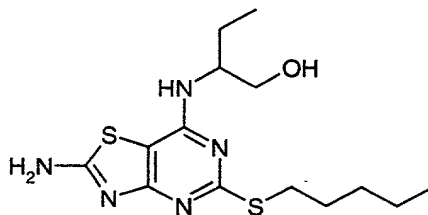
5 Prepared by the method of Example 3 using 3-phenoxybenzyl chloride.

m.p. 266-269°C

MS: APCI(+ve) 383 (M+1)

¹H NMR: δ (DMSO) 4.40 (s,2H), 6.81-7.41 (m,9H), 8.15 (s,2H) and 12.55 (s,1H).

10

Example 6**(±)-2-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol****(a) 7-Chloro-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-2-amine**

15 Prepared by the method of Example 1(a) from 2-amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one (product of Example 10).

m.p. 176.5-177.5°C

MS: APCI(+ve) 289 (M+1)

20 ¹H NMR: δ (DMSO) 0.88 (t,3H), 1.22-1.42 (m,4H), 1.60-1.74 (m,2H), 3.08 (t,2H) and 8.90 (s,2H).

(b) (±)-2-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

Prepared by the method of Example 1(b) from the chloro compound of Example 6(a) and the appropriate amine.

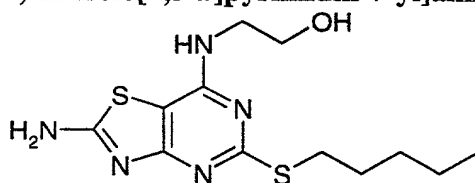
m.p. 151-154°C

5 MS: APCI(+ve) 342 (M+1)

¹H NMR: δ (DMSO) 0.82-0.95 (m,6H), 1.22-1.72 (m,8H), 3.04 (m,2H), 3.39-3.56 (m,2H), 4.07 (m,1H), 4.64 (t,1H), 6.88 (d,1H), 7.44 (br s,1H) and 7.96 (s,2H).

Example 7

10 2-[[2-Amino-5-(pentylthio)thiazolo[4,5-d]pyrimidin-7-yl]amino]ethanol



Prepared by the method of Example 6(b).

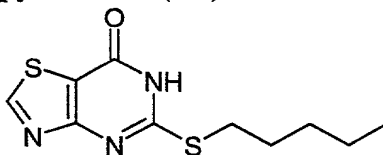
m.p. 192-195°C

15 MS: APCI(+ve) 314 (M+1)

¹H NMR: δ (DMSO) 0.87 (t,3H), 1.21-1.42 (m,4H), 1.57-1.70 (m,2H), 2.99 (t,2H), 3.37-3.46 (m,2H), 3.46-3.58 (m,2H), 4.71 (t,1H), 7.22 (t,1H) and 7.97 (s,2H).

Example 8

20 5-(Pentylthio)thiazolo[4,5-d]pyrimidin-7(4H)-one



Prepared by the method of Example 4.

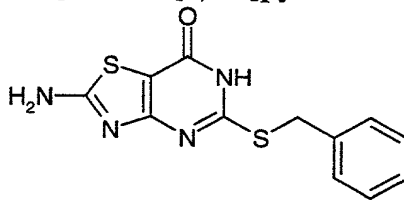
m.p. 208-209°C

25 MS: APCI(+ve) 256 (M+1)

^1H NMR: δ (DMSO) 0.88 (t,3H), 1.22-1.44 (m,4H), 1.63-1.75 (m,2H), 3.20 (t,2H), 9.57 (s,1H) and 13.06 (s,1H).

Example 9

5 **2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**



(a) **6-Amino-2-[(phenylmethyl)thio]-5-thiocyanato-4(1*H*)-pyrimidinone**

6-Amino-2-[(phenylmethyl)thio]-4(1*H*)-pyrimidinone (10.5g) (prepared as described in WO 96/35678) and potassium thiocyanate (25g) in dimethylformamide (200mL) were heated together at 65°C. Pyridine (6.3mL) was added and the solution cooled to 5°C. Bromine (2.2mL) was added slowly and the reaction mixture stirred for 2 hours at 5-10°C. The reaction mixture was poured onto ice and water, stirred for 1 hour and the solid was filtered off. After washing with water and ether a pure sample was obtained after titration with hot methanol.

m.p. 260-262°C

MS: APCI(+ve) 291 (M+1)

^1H NMR: δ (DMSO) 4.38 (s,2H), 7.21-7.51 (m,5H), 7.70 (br s,2H) and 12.35 (s,1H).

20 (b) **2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

The product of step (a) (7.35g) was heated at 120°C in dimethylformamide (40mL) and water (10mL) for 10 hours. After cooling, the resulting solid was filtered off, washed with water, ether and ethyl acetate to give the title compound containing 0.4 moles of dimethylformamide.

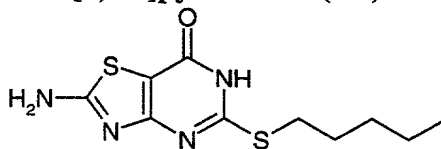
m.p. ~325°

MS: APCI(+ve) 291 (M+1)

^1H NMR: δ (DMSO) 4.41 (s,2H), 7.21-7.50 (m,5H), 8.17 (s,2H) and 12.53 (br s,1H).

Example 10

2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one



(a) 6-Amino-2-(pentylthio)-5-thiocyanato-4(1*H*)-pyrimidinone

Prepared by the method of Example 9(a).

m.p. 260-262°C

MS: APCI(+ve) 214 (M+1)

^1H NMR: δ (DMSO) 0.86 (t,3H), 1.22-1.40 (m,4H), 1.56-1.68 (m,2H), 3.10 (t,2H), 7.58 (br s,2H) and 12.30 (s,1H).

(b) 2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

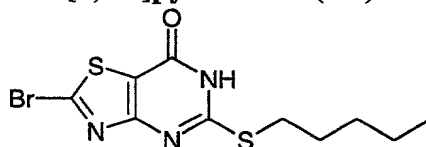
Prepared by the method of Example 9(b).

MS: APCI(+ve) 271 (M+1)

^1H NMR: δ (DMSO) 0.86 (t,3H), 1.24-1.40 (m,4H), 1.58-1.70 (m,2H), 3.12 (t,2H), 8.12 (br s,2H) and 12.49 (s,1H).

Example 11

2-Bromo-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one



Trimethylsilyl bromide (0.44mL) was added slowly to a solution at 0°C under nitrogen of t-butyl nitrite (0.42mL) in acetonitrile (2mL). After 30 minute at 0°C, 2-amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one (0.5g) (product of Example 10) was added.

The reaction mixture was stirred at room temperature for 16 hours and the solvent was evaporated. Chromatography on silica eluting with dichloromethane/methanol mixtures gave the title bromide.

5 m.p. 189-191°C

MS: APCI(+ve) 336/7 (M+1)

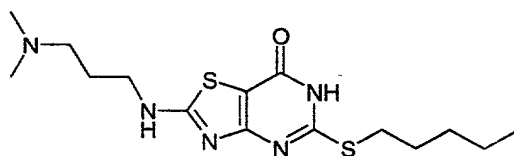
¹H NMR: δ (DMSO) 0.88 (t,3H), 1.26-1.41 (m,4H), 1.64-1.75 (m,2H), 3.18 (t,2H) and 13.22 (s,1H).

10 Examples 12-26

The compounds of Examples 12 to 26 were prepared by heating 2-bromo-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one (product of Example 11) with 5 equivalents of the appropriate amine in tetrahydrofuran at 45°C for 5 hours.

15 Example 12

2-[[3-(Dimethylamino)propyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

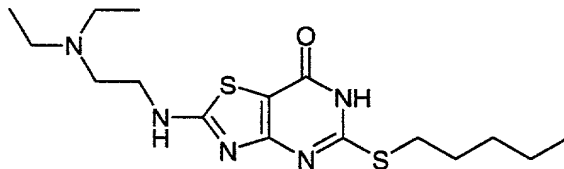


MS: APCI (+ve) 356 (M+1)

20

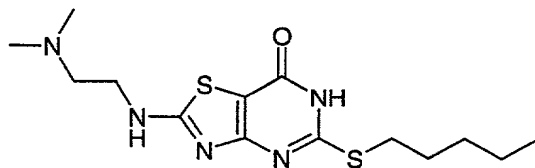
Example 13

2-[[2-(Diethylamino)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one



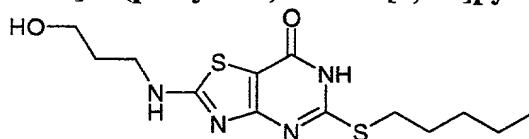
MS: APCI (+ve) 370 (M+1)

25

Example 14**2-[[2-(Dimethylamino)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

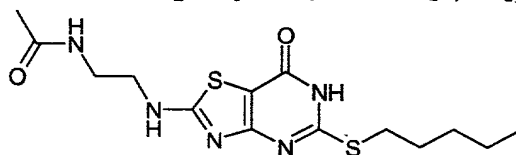
MS: APCI (+ve) 342 (M+1)

5

Example 15**2-[(3-Hydroxypropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

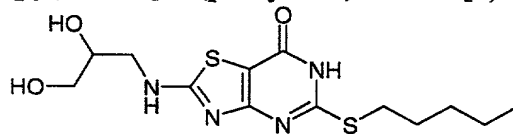
MS: APCI (+ve) 329 (M+1)

10

Example 16**2-[[2-(Acetylamino)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

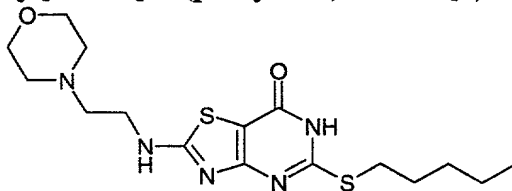
MS: APCI (+ve) 356 (M+1)

15

Example 17**(±)-2-[(2,3-Dihydroxypropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

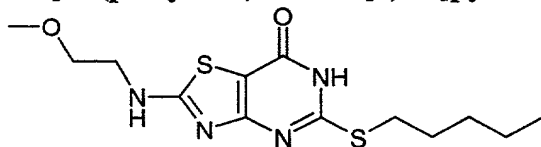
MS: APCI (+ve) 345 (M+1)

20

Example 18**2-[[2-(4-Morpholinyl)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

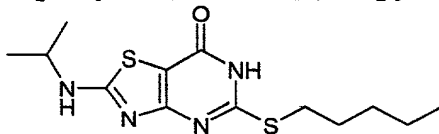
MS: APCI (+ve) 384 (M+1)

5

Example 19**2-[(2-Methoxyethyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

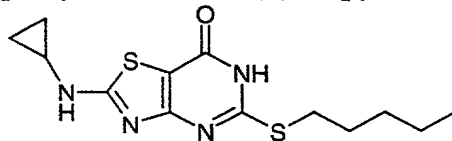
MS: APCI (+ve) 329 (M+1)

10

Example 20**2-[(1-Methylethyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

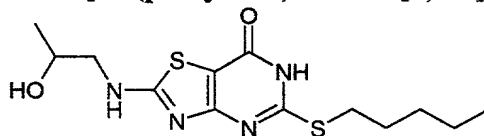
MS: APCI (+ve) 313 (M+1)

15

Example 21**2-(Cyclopropylamino)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

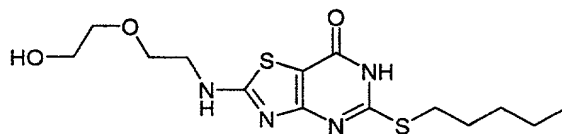
MS: APCI (+ve) 311 (M+1)

20

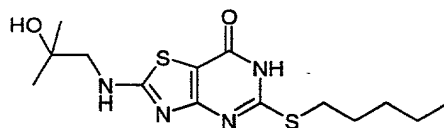
Example 22**(±)-2-[(2-Hydroxypropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

MS: APCI (+ve) 329 (M+1)

5

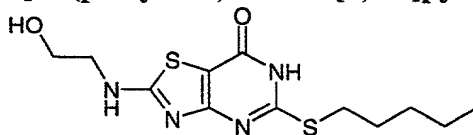
Example 23**2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

10 MS: APCI (+ve) 359 (M+1)

Example 24**2-[(2-Hydroxy-2-methylpropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

15

MS: APCI (+ve) 343 (M+1)

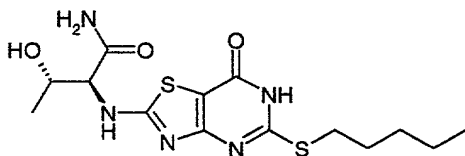
Example 25**2-[(2-Hydroxyethyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

20

MS: APCI (+ve) 315 (M+1)

Example 26

(2*S*,3*R*)-3-Hydroxy-2-[(7-oxo-5-(pentylthio)-4*H*-thiazolo[4,5-*d*]pyrimidin-2-yl)-amino]butanamide



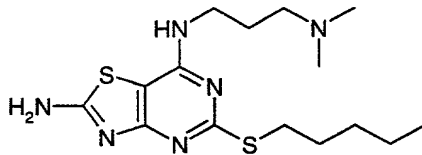
5 MS: APCI (+ve) 372 (M+1)

Examples 27-43

The compounds of Examples 27 to 43 were prepared by heating 7-chloro-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-2-amine (product of Example 6, step a) with 5
10 equivalents of the appropriate amine in tetrahydrofuran at 45°C for 5 hours.

Example 27

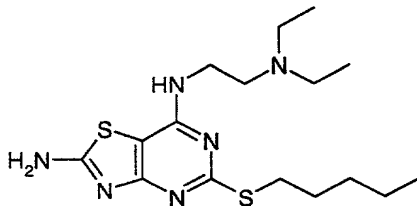
*N*⁷-[3-(Dimethylamino)propyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine



15 MS: APCI (+ve) 355 (M+1)

Example 28

*N*⁷-[2-(Diethylamino)ethyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine

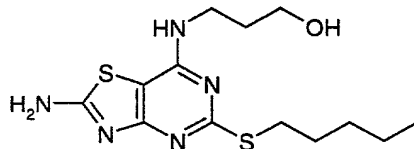


20 MS: APCI (+ve) 369 (M+1)

Example 29***N*⁷-[2-(Dimethylamino)ethyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine**

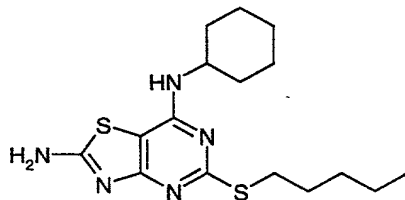
MS: APCI (+ve) 341 (M+1)

5

Example 30**3-[(2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl)amino]-1-propanol**

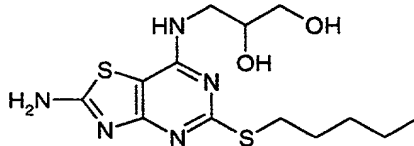
MS: APCI (+ve) 328 (M+1)

10

Example 31***N*⁷-Cyclohexyl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine**

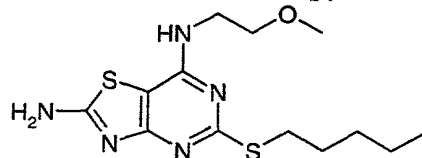
MS: APCI (+ve) 352 (M+1)

15

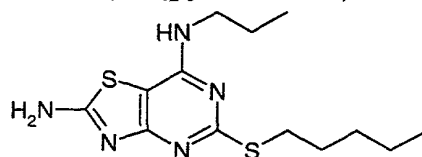
Example 32**(±)-3-[(2-Amino-5-((phenylmethyl)thio)thiazolo[4,5-*d*]pyrimidin-7-yl)amino]-1,2-propanediol**

20

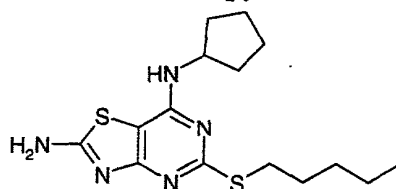
MS: APCI (+ve) 344 (M+1)

Example 33***N*⁷-(2-Methoxyethyl)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine**

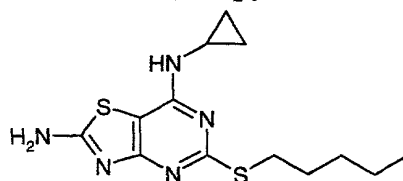
5 MS: APCI (+ve) 328 (M+1)

Example 34**5-(Pentylthio)-*N*⁷-propylthiazolo[4,5-*d*]pyrimidine-2,7-diamine**

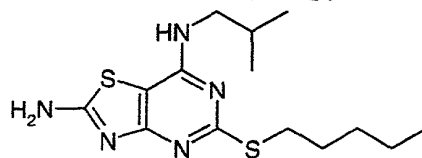
10 MS: APCI (+ve) 312 (M+1)

Example 35***N*⁷-Cyclopentyl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine**

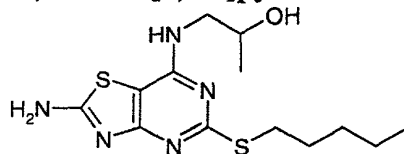
15 MS: APCI (+ve) 338 (M+1)

Example 36***N*⁷-Cyclopropyl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine**

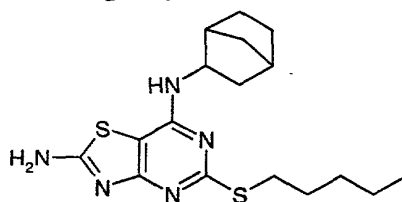
20 MS: APCI (+ve) 310 (M+1)

Example 37***N*⁷-(2-Methylpropyl)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine**

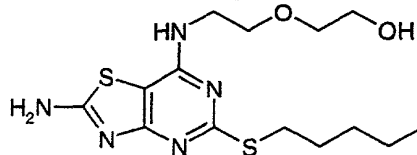
5 MS: APCI (+ve) 326 (M+1)

Example 38**(±)-1-[(2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl)amino]-2-propanol**

10 MS: APCI (+ve) 328 (M+1)

Example 39**(exo)-*N*⁷-Bicyclo[2.2.1]hept-2-yl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine**

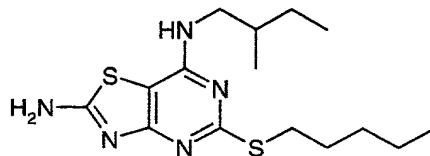
15 MS: APCI (+ve) 364 (M+1)

Example 40**2-[2-[(2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl)amino]ethoxy]ethanol**

20 MS: APCI (+ve) 358 (M+1)

Example 41

(±)-*N*⁷-(2-Methylbutyl)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine

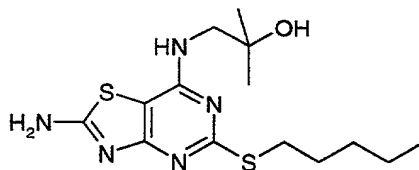


MS: APCI (+ve) 340 (M+1)

5

Example 42

1-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-2-propanol

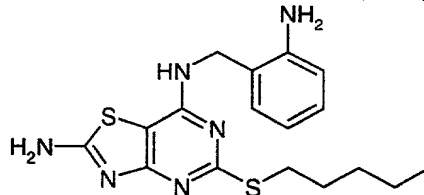


MS: APCI (+ve) 342 (M+1)

10

Example 43

*N*⁷-[(2-Aminophenyl)methyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine



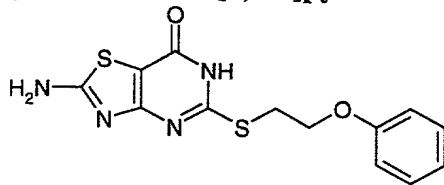
MS: APCI (+ve) 375 (M+1)

15

Examples 44-47

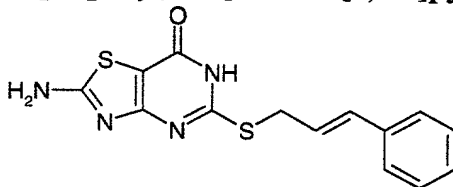
The compounds of Examples 44 to 47 were prepared from 2-amino-5,6-dihydro-5-thioxothiazolo[4,5-*d*]pyrimidin-7(4*H*)-one, diisopropylethylamine and the appropriate alkyl halide in dimethyl sulfoxide/dimethylformamide at 60°C. A total of 5 equivalents of base and alkyl halide were added over 3 days.

20

Example 44**2-Amino-5-[(2-phenoxyethyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

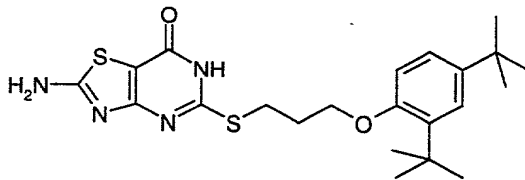
MS: APCI (+ve) 321 (M+1)

5

Example 45**(*E*)-2-Amino-5-[(3-phenyl-2-propenyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

MS: APCI (+ve) 317 (M+1)

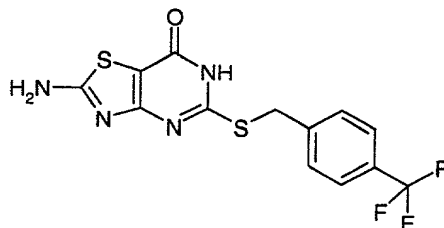
10

Example 46**2-Amino-5-[[3-[2,4-bis(1,1-dimethylethyl)phenoxy]propyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

15 MS: APCI (+ve) 447 (M+1)

Example 47

2-Amino-5-[[[(4-trifluoromethyl)phenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one



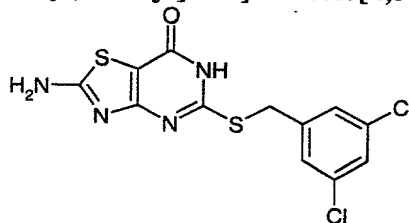
5 MS: APCI (+ve) 359 (M+1)

Examples 48-65

The compounds of Examples 48 to 65 were prepared from 2-amino-5,6-dihydro-5-thioxothiazolo[4,5-*d*]pyrimidin-7(4*H*)-one (product of Example 3, step a), potassium
10 t-butoxide and the appropriate benzyl halide in dimethyl sulphoxide at room temperature. A total of 1.2 equivalents of base and alkyl halide were used and a reaction time of 24 hours.

Example 48

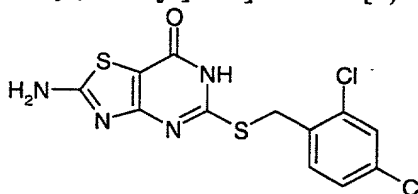
15 **2-Amino-5-[[[(3,5-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**



MS: APCI (+ve) 359 (M+1)

Example 49

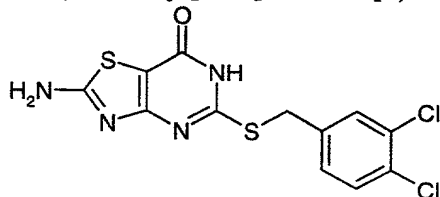
20 **2-Amino-5-[[[(2,4-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**



MS: APCI (+ve) 359 (M+1)

Example 50

2-Amino-5-[[[(3,4-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

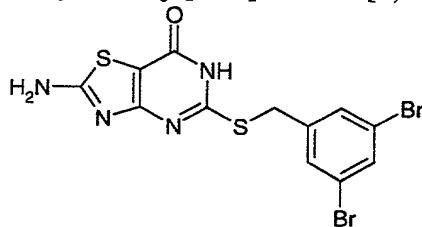


5

MS: APCI (+ve) 359 (M+1)

Example 51

2-Amino-5-[[[(3,5-dibromophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

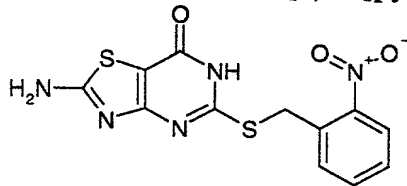


10

MS: APCI (+ve) 449 (M+1)

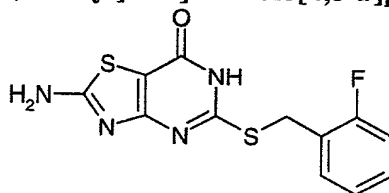
Example 52

2-Amino-5-[[[(2-nitrophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one



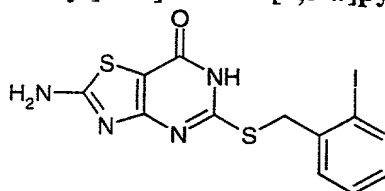
15

MS: APCI (+ve) 336 (M+1)

Example 53**2-Amino-5-[[2-(2-fluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

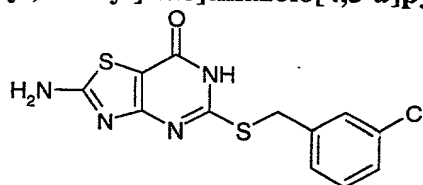
MS: APCI (+ve) 309 (M+1)

5

Example 54**2-Amino-5-[[2-(2-iodophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

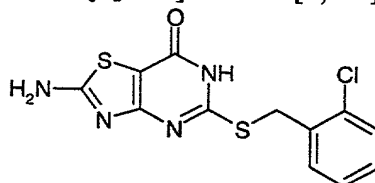
MS: APCI (+ve) 417 (M+1)

10

Example 55**2-Amino-5-[[2-(3-chlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

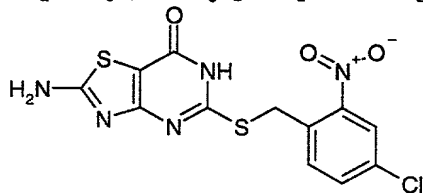
MS: APCI (+ve) 325 (M+1)

15

Example 56**2-Amino-5-[[2-(2-chlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

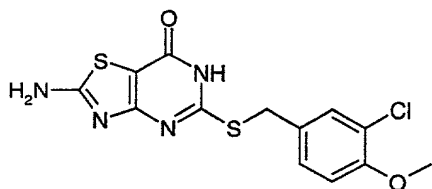
MS: APCI (+ve) 325 (M+1)

20

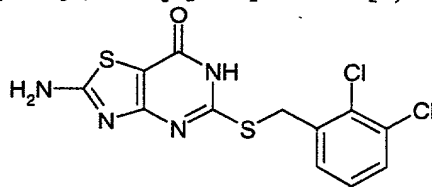
Example 57**2-Amino-5-[[[(4-chloro-2-nitrophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

MS: APCI (+ve) 370 (M+1)

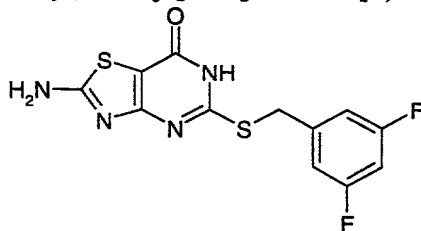
5

Example 58**2-Amino-5-[[[(3-chloro-4-methoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

10 MS: APCI (+ve) 355 (M+1)

Example 59**2-Amino-5-[[[(2,3-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

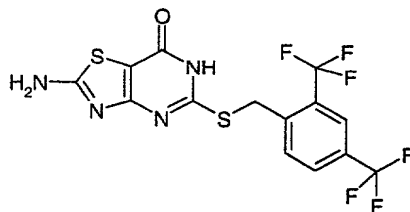
15 MS: APCI (+ve) 359 (M+1)

Example 60**2-Amino-5-[[[(3,5-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

MS: APCI (+ve) 327 (M+1)

Example 61

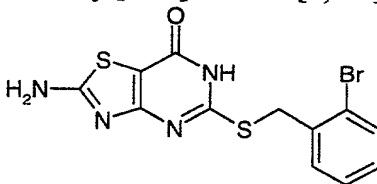
2-Amino-5-[[[(2,4-bis(trifluoromethyl)phenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one



MS: APCI (+ve) 427 (M+1)

Example 62

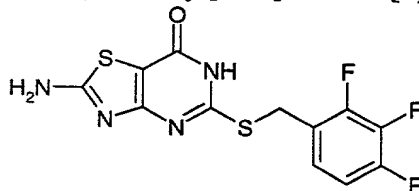
2-Amino-5-[[[(2-bromophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one



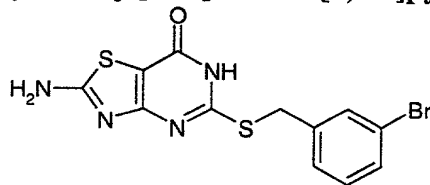
MS: APCI (+ve) 371 (M+1)

Example 63

2-Amino-5-[[[(2,3,4-trifluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

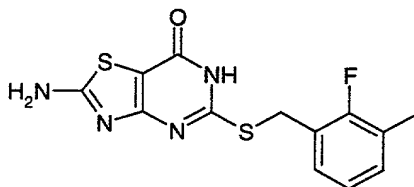


MS: APCI (+ve) 345 (M+1)

Example 64**2-Amino-5-[[3-(bromophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

MS: APCI (+ve) 369 (M+1)

5

Example 65**2-Amino-5-[[2-fluoro-3-methylphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

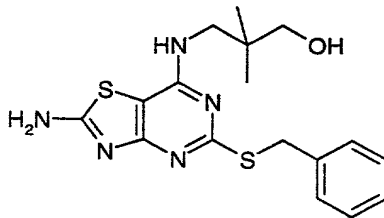
10 MS: APCI (+ve) 323 (M+1)

Examples 66-77

The compounds of Examples 66 to 77 were prepared from 7-chloro-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-amine and the appropriate hydroxyamine in dimethyl sulfoxide at 45°C. A total of 6 equivalents of amine were added and the reaction time was 2 days.

Example 66**3-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2,2-dimethyl-1-propanol**

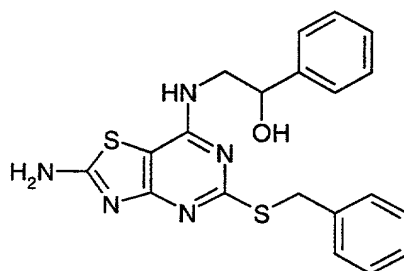
20



MS: APCI (+ve) 376 (M+1)

Example 67

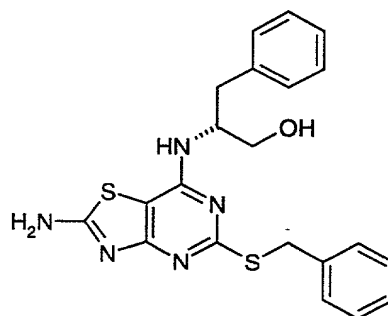
(±)-α-[[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]benzenemethanol



MS: APCI (+ve) 410 (M+1)

Example 68

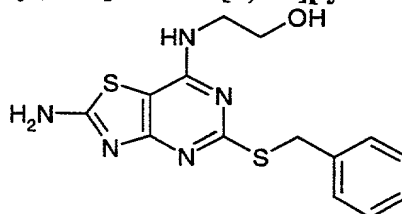
(*R*)-β-[[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]benzenepropanol



MS: APCI (+ve) 424 (M+1)

Example 69

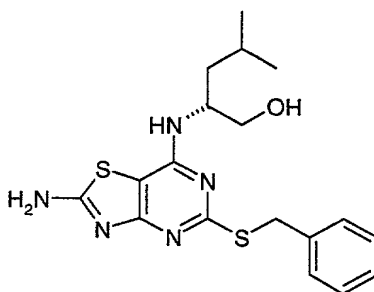
2-[[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethanol



MS: APCI (+ve) 334 (M+1)

Example 70

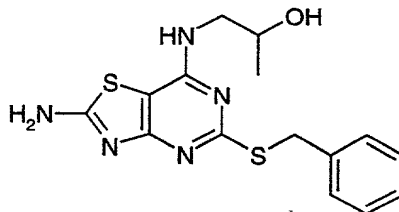
(2*R*)-2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]4-methylpentanol



MS: APCI (+ve) 390 (M+1)

Example 71

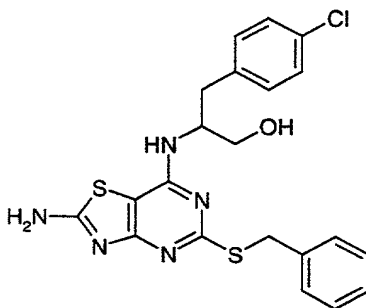
(±)-1-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol



MS: APCI (+ve) 348 (M+1)

Example 72

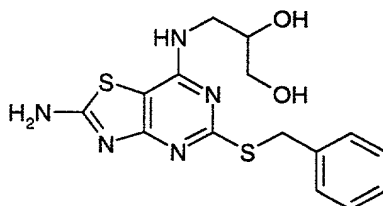
(±)-β-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-chlorobenzenepropanol



MS: APCI (+ve) 458 (M+1)

Example 73

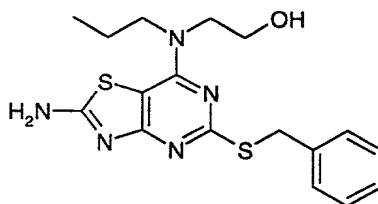
(±)-3-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,2-propanediol



MS: APCI (+ve) 364 (M+1)

Example 74

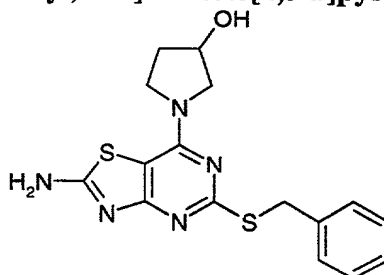
2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-propylamino]ethanol



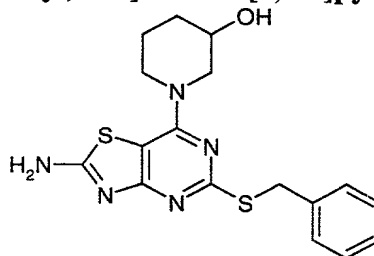
MS: APCI (+ve) 376 (M+1)

Example 75

(±)-1-[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-pyrrolidinol

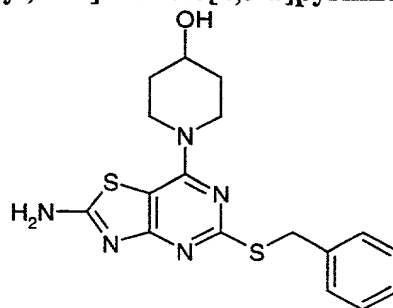


MS: APCI (+ve) 360 (M+1)

Example 76**(±)-1-[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinol**

MS: APCI (+ve) 374 (M+1)

5

Example 77**1-[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-piperidinol**

MS: APCI (+ve) 374 (M+1)

10

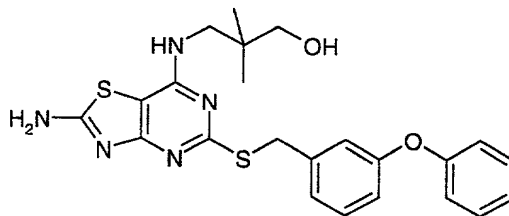
Examples 78-110

The compounds of Examples 78 to 110 were prepared from 7-chloro-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-2-amine (prepared by the method of Example 1, step a) using the product of Example 5) and the appropriate hydroxyamine in tetrahydrofuran at 45°C. A total of 6 equivalents of amine were added and the reaction time was 2 days.

15

Example 78

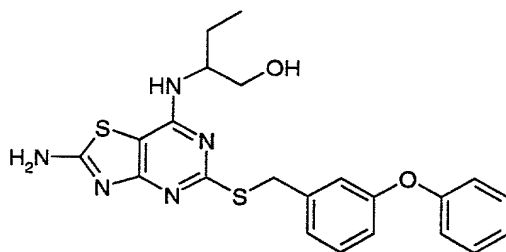
3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2,2-dimethyl-1-propanol



5 MS: APCI (+ve) 468 (M+1)

Example 79

(±)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]-1-butanol



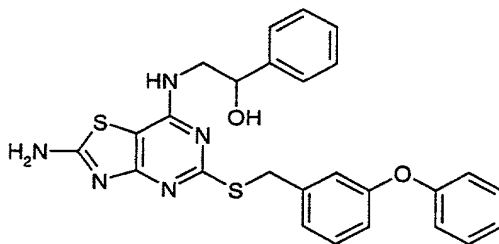
10

MS: APCI (+ve) 454 (M+1)

Example 80

(±)-α-[[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]methyl]benzenemethanol

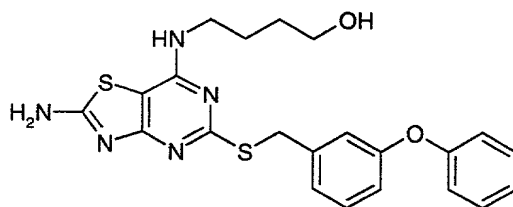
15



MS: APCI (+ve) 502 (M+1)

Example 81

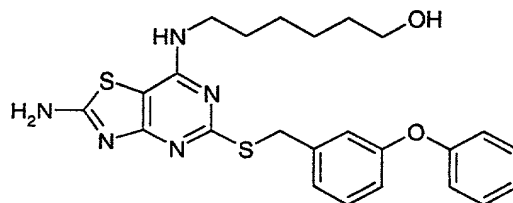
4-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol



5 MS: APCI (+ve) 454 (M+1)

Example 82

6-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-hexanol



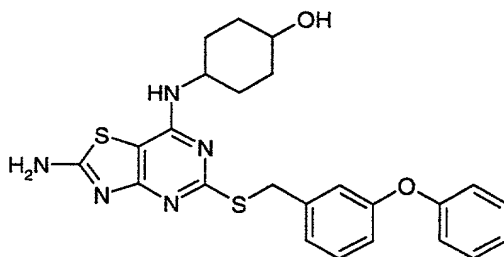
10

MS: APCI (+ve) 482 (M+1)

Example 83

4-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]cyclohexanol

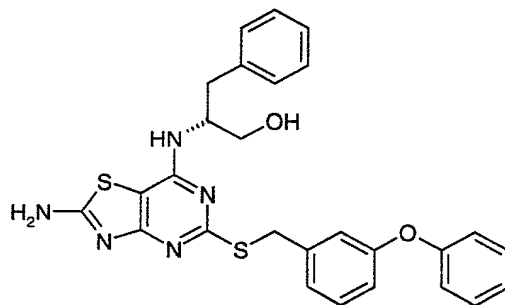
15



MS: APCI (+ve) 480 (M+1)

Example 84

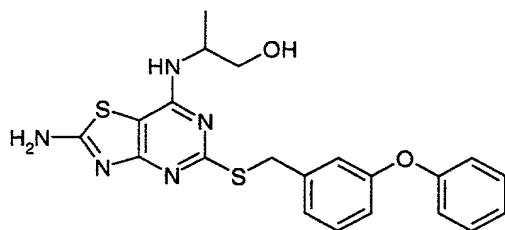
(*R*)- β -[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]benzenepropanol



5 MS: APCI (+ve) 516 (M+1)

Example 85

(\pm)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]-1-propanol



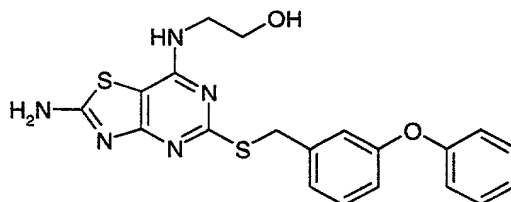
10

MS: APCI (+ve) 440 (M+1)

Example 86

2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]ethanol

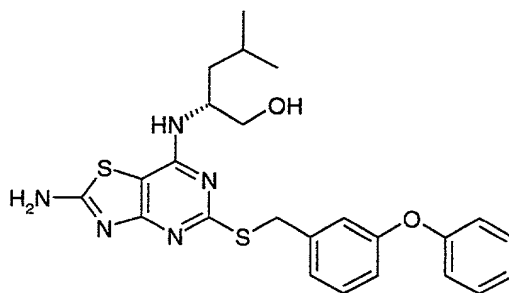
15



MS: APCI (+ve) 426 (M+1)

Example 87

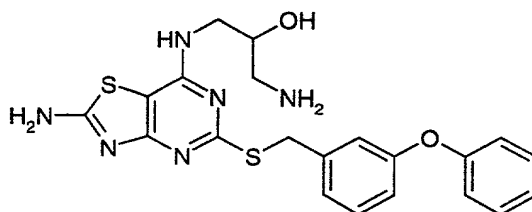
(2*R*)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]-4-methylpentanol



5 MS: APCI (+ve) 482 (M+1)

Example 88

(±)-1-Amino-3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol



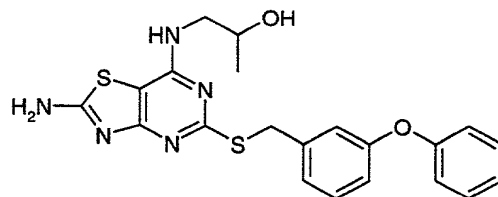
10

MS: APCI (+ve) 455 (M+1)

Example 89

(±)-1-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol

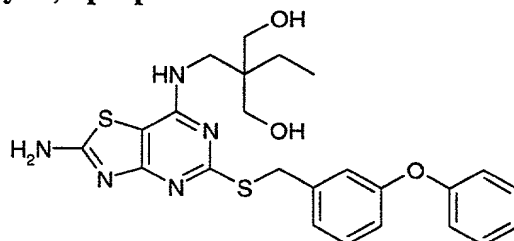
15



MS: APCI (+ve) 440 (M+1)

Example 90

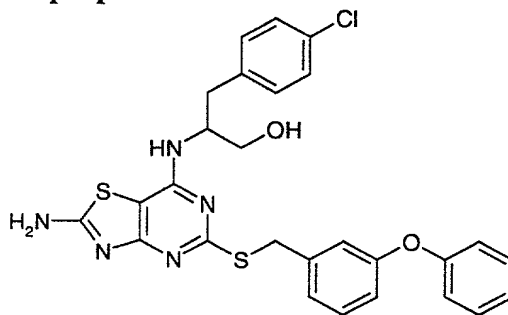
2-[[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]-2-ethyl-1,3-propanediol



5 MS: APCI (+ve) 498 (M+1)

Example 91

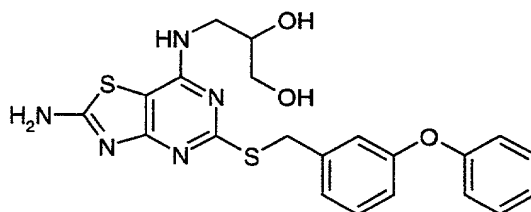
(±)-β-[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-chlorobenzenepropanol



MS: APCI (+ve) 550 (M+1)

Example 92

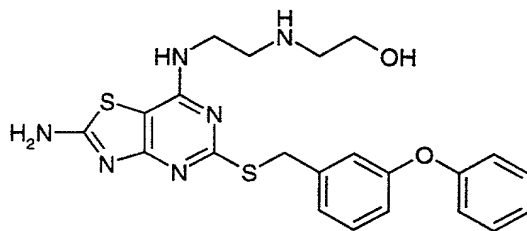
(±)-3-[[2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,2-propanediol



MS: APCI (+ve) 456 (M+1)

Example 93

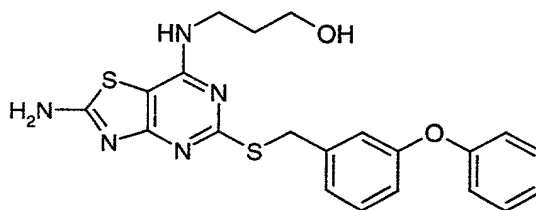
2-[[2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethyl]amino]ethanol



5 MS: APCI (+ve) 469 (M+1)

Example 94

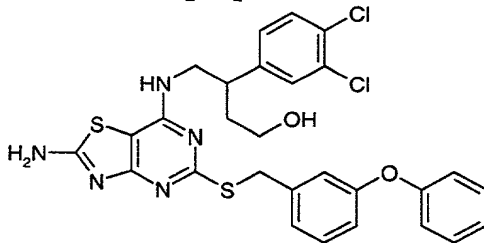
3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol



10 MS: APCI (+ve) 440 (M+1)

Example 95

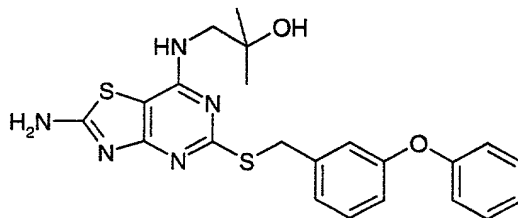
(±)-α-[[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]-3,4-dichlorobenzenepropanol



15 MS: APCI (+ve) 598 (M+1)

Example 96

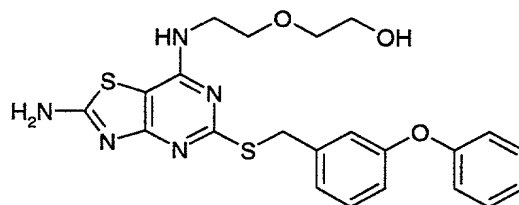
1-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-2-propanol



5 MS: APCI (+ve) 454 (M+1)

Example 97

2-[2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethoxy]ethanol



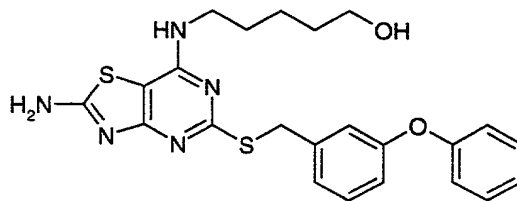
10

MS: APCI (+ve) 470 (M+1)

Example 98

5-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol

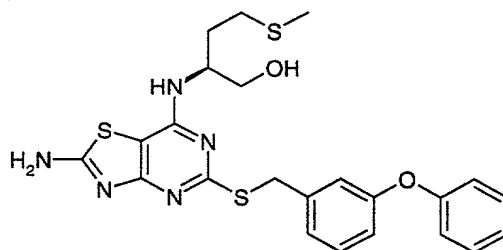
15



MS: APCI (+ve) 468 (M+1)

Example 99

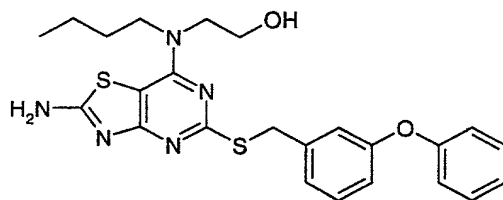
(2S)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-d]pyrimidin-7-yl]amino]-4-(methylthio)-1-butanol



5 MS: APCI (+ve) 500 (M+1)

Example 100

2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-d]pyrimidin-7-yl]butylamino]ethanol



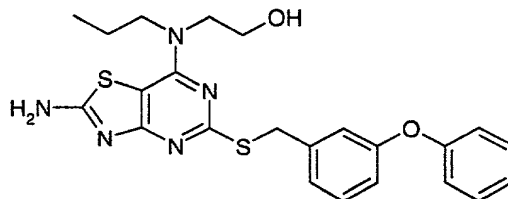
10

MS: APCI (+ve) 482 (M+1)

Example 101

2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-d]pyrimidin-7-yl]propylamino]ethanol

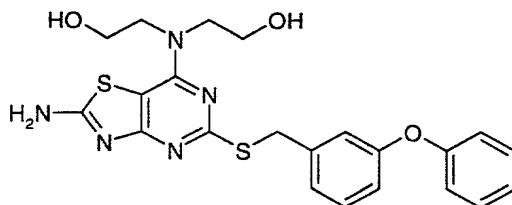
15



MS: APCI (+ve) 468 (M+1)

Example 102

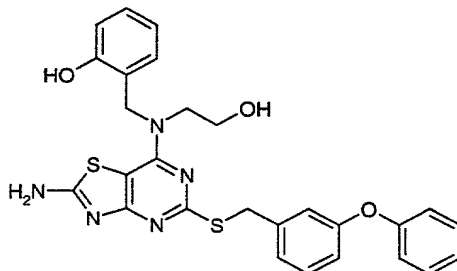
2,2'-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]imino]bisethanol



5 MS: APCI (+ve) 470 (M+1)

Example 103

2-[[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-(2-hydroxyethyl)amino]methyl]phenol



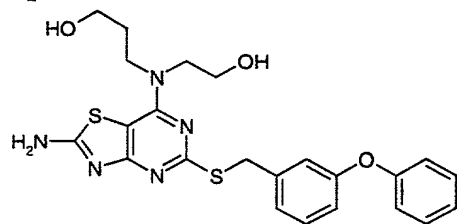
10

MS: APCI (+ve) 532 (M+1)

Example 104

3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-(2-hydroxyethyl)amino]-1-propanol

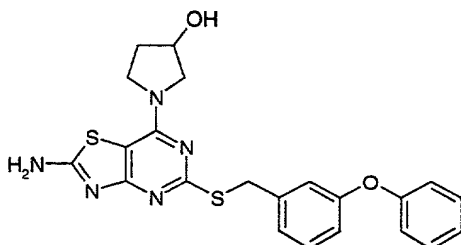
15



MS: APCI (+ve) 484 (M+1)

Example 105

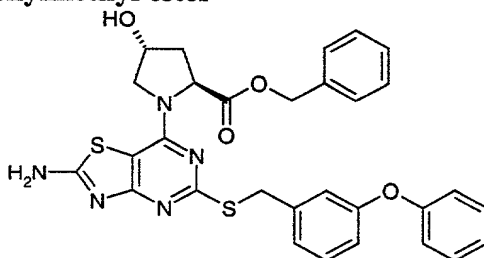
(±)-1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-pyrrolidinol



5 MS: APCI (+ve) 452 (M+1)

Example 106

(*trans*)-1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-hydroxy-*L*-proline phenylmethyl ester



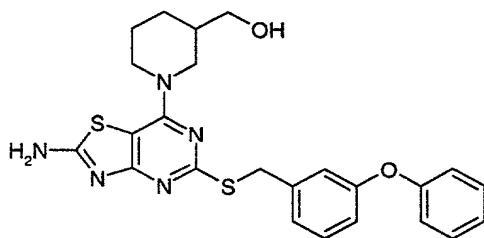
10

MS: APCI (+ve) 586 (M+1)

Example 107

(±)-1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinemethanol

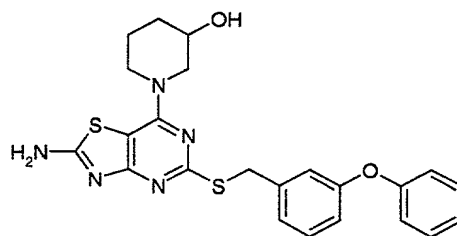
15



MS: APCI (+ve) 480 (M+1)

Example 108

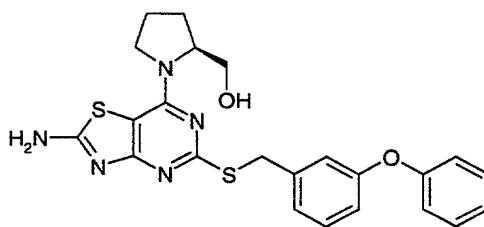
(±)-1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinol



5 MS: APCI (+ve) 466 (M+1)

Example 109

(2*S*)-1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-2-pyrrolidinemethanol



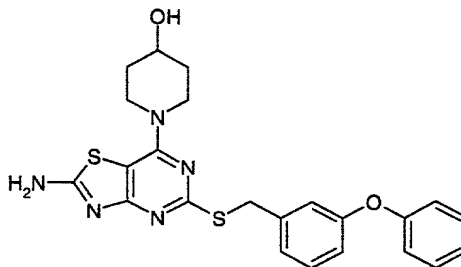
10

MS: APCI (+ve) 466 (M+1)

Example 110

1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-piperidinol

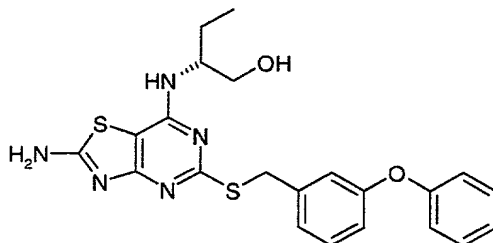
15



MS: APCI (+ve) 466 (M+1)

Example 111

(2R)-2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol



- 5 **(a) 7-chloro-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-2-amine**
Prepared by the method of Example 1(a).

m.p. 178-180°C

MS: APCI (+ve) 401 (M+1)

- 10 ¹H NMR: δ (DMSO) 4.37 (s,2H), 6.83-7.39 (m,9H) and 8.95 (s,2H).

(b) (2R)-2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

Prepared by the method of Example 1(b).

15

m.p. 108-111°C

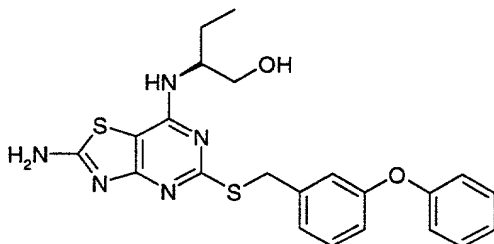
MS: APCI (+ve) 454 (M+1)

¹H NMR: δ (DMSO) 0.81 (t,3H), 1.41 (m,2H), 1.62 (m,2H), 3.36 (m,2H), 4.03 (m,1H), 4.31 (q,2H), 4.62 (s,1H), 6.78-7.38 (m,9H) and 8.00 (s,2H).

20

Example 112

(2S)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-d]pyrimidin-7-yl]amino]-1-butanol



5 Prepared by the method of Example 1(b).

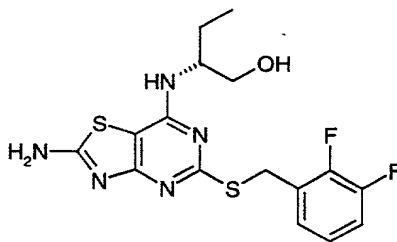
m.p. 111-114°C

MS: APCI (+ve) 454 (M+1)

¹H NMR: δ (DMSO) 0.81 (t,3H), 1.41 (m,2H), 1.62 (m,2H), 3.36 (m,2H), 4.02 (br d,1H),
 10 4.32 (q,2H), 4.60 (s,1H), 6.79-7.40 (m,9H) and 8.04 (s,2H).

Example 113

(2R)-2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-d]pyrimidin-7-yl]amino]-1-butanol



15

(a) 7-Chloro-5-[[[(3,4-difluorophenyl)methyl]thio]thiazolo[4,5-d]pyrimidin-2-amine

Prepared by the method of Example 1(a) using the product of Example 3.

m.p. 209-210°C

20 MS: APCI(+ve) 345/6 (M+1)

¹H NMR: δ (DMSO) 4.45 (s,2H), 7.10-7.42 (m,3H) and 8.90 (br s,2H).

(b) (2*R*)-2-[[2-Amino-5-[[3,4-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

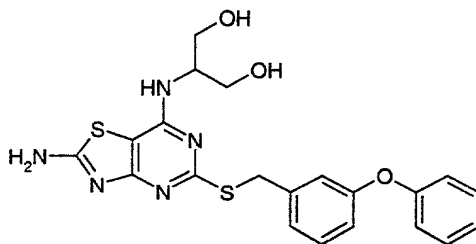
Prepared by the method of Example 1(b) using the product of step a) above.

5 MS: APCI(+ve) 398 (M+1)

¹H NMR: δ (DMSO) 0.82 (t,3H), 1.34-1.71 (m,4H), 3.37 (m,2H), 4.03 (br d,1H), 4.38 (q,2H), 4.62 (t,1H), 6.96 (d,1H), 7.06-7.40 (m,3H) and 8.02 (s,2H).

Example 114

10 **2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,3-propanediol**



Prepared by the method of Example 1(b).

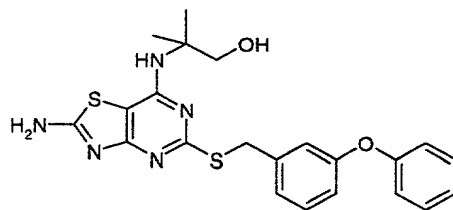
15 m.p. 220-222°C

MS: APCI (+ve) 456 (M+1)

¹H NMR: δ (DMSO) 3.50 (t,4H), 4.13 (m,1H), 4.32 (s,2H), 4.60 (t,2H), 6.78-7.40 (m,10H) and 8.01 (s,2H).

20 **Example 115**

2-[[2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol



Prepared by the method of Example 1(b) with 10 equivalents of amine, 45-65°C and reaction time of 3 weeks. Purification by chromatography on silica eluting with methanol/dichloromethane mixtures gave the title compound.

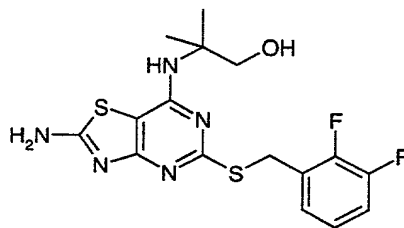
5 m.p. 126-130°C

MS: APCI (+ve) 454 (M+1)

¹H NMR: δ (DMSO) 1.30 (s,6H), 3.53 (d,2H), 4.33 (s,2H), 4.86 (t,1H), 6.28 (s,1H), 6.80-7.40 (m,9H) and 8.00 (s,2H).

10 **Example 116**

2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-d]pyrimidin-7-yl]amino]-2-methyl-1-propanol



Prepared by the method of Example 1(b) using the product of Example 113, step a), 10 equivalents of amine, 45-65°C and reaction time of 3 weeks. Purification by chromatography on silica eluting with methanol/dichloromethane mixtures gave the title compound.

m.p. 231-234°C

20 MS: APCI (+ve) 398 (M+1)

¹H NMR: δ (DMSO) 1.30 (s,6H), 3.53 (d,2H), 4.40 (s,2H), 4.84 (t,1H), 6.32 (s,1H), 7.10-7.40 (m,3H) and 8.03 (s,2H).

Example 117**1-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-2-propanol**

5 The product from Example 113, step a) (0.1g) and 1-amino-2-methyl-propan-2-ol (0.5g) in tetrahydrofuran (10ml) was heated in a sealed vessel at 100 °C for 18 hours. The mixture was evaporated to dryness and purified (HPLC, Novapak® C18 column, 0.1% aqueous ammonium acetate:acetonitrile, gradient elution 70:30 to 0:100 over 15 minutes) to afford the title compound (0.051g).

10 MS (APCI) 398 (M+H⁺, 100%).

NMR δH (d₆-DMSO) 8.05 (2H, s), 7.39-7.17 (2H, m), 7.16-7.05 (2H, m), 4.51 (1H, s), 5.23 (1H, d), 4.39 (2H, s), 3.37 (2H, d), 1.06 (6H, s).

Example 118**5-[[2,3-Difluorophenyl)methyl]thio]-N⁷-(2-fluoroethyl)thiazolo[4,5-*d*]pyrimidine-2,7-diamine**

20 The product from Example 113, step a) (0.1g), 2-fluoroethylamine hydrochloride (0.5g) and *N,N*-ethyldiisopropylamine (0.4ml) in tetrahydrofuran:water (7ml, 5:2) was heated in a sealed vessel at 100 °C for 18 hours. The mixture was evaporated to dryness and purified (HPLC, Novapak® C18 column, 0.1% aqueous ammonium acetate:acetonitrile, gradient elution 70:30 to 0:100 over 15 minutes) to afford the title compound (0.027g).

25 MS (APCI) 372 (M+H⁺, 100%).

NMR δH (d₆-DMSO) 8.09 (2H, s), 7.36 (1H, t), 7.38-7.10 (3H, m), 4.57 (1H, t), 4.21 (3H,m), 3.71 (1H, q), 4.39 (2H, s), 3.63 (1H, q).

Example 119

(1*R*-trans) 2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-cyclopentanol

5 The product from example 113 step a) (0.2g), (*1R,2R*) 2-aminocyclopentanol hydrochloride (1.0g) and *N*-ethyl-diisopropylamine (1.2ml) in methanol (15ml) was heated in a sealed vessel at 120 °C for 90 mins. The mixture was evaporated to dryness and purified (HPLC, Novapak[®] C18 column, 0.1% aqueous ammonium acetate:acetonitrile, gradient elution 70:30 to 0:100 over 15 minutes) to afford the title compound (0.098g).

10

MS (APCI) 410 (M+H⁺, 100%).

NMR δH (d₆-DMSO) 8.04 (2H, s), 7.41-7.27 (2H, m), 7.20 (1H, d), 7.16-7.11 (1H, m), 4.76 (1H, d), 4.41 (2H, dd), 4.09 (1H, m), 3.95 (1H, m), 1.99 (1H, m), 1.89 (1H, m), 1.62 (2H, m), 1.49-1.36 (2H, m).

15

Example 120

(1*S*-trans) 2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-cyclopentanol

20 Prepared by the method of Example 119 using the product from Example 113, step a) and (*1S,2S*)-2-aminocyclopentanol hydrochloride.

MS (APCI) 410 (M+H⁺, 100%).

25 NMR δH (d₆-DMSO) 8.03 (2H, s), 7.41-7.27 (2H, m), 7.20 (1H, d), 7.16-7.11 (1H, m), 4.76 (1H, d), 4.41 (2H, dd), 4.09 (1H, m), 3.96 (1H, m), 1.99 (1H, m), 1.89 (1H, m), 1.62 (2H, m), 1.49-1.36 (2H, m).

Example 121**2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol**

- 5 Prepared by the method of Example 117 using the product of Example 1, step a) (0.6g) and 2-amino-2-methyl-propanol. Purification (SiO₂, ethyl acetate as eluant) gave the title compound (0.46g).

MS (APCI) 362 (M+H⁺, 100%).

- 10 NMR δH (d₆-DMSO) 8.00 (2H, s), 7.42-7.20 (5H, m), 6.29 (1H, s), 4.86 (1H, s), 4.35 (2H, s), 3.56 (2H, d), 1.32 (6H, s).

Example 122

- 15 **2-Methyl-2-[[2-(methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol**

a) 2-[[2-Bromo-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

- 20 To a solution of the product from Example 121 (0.1g) in bromoform (5 ml) was added isoamylnitrite (0.13 ml) and the mixture heated at 60°C for 10 mins. The mixture was evaporated to dryness then purified (SiO₂, ethyl acetate: dichloromethane 1:9 as eluant) to give the subtitle compound (0.043g).

- 25 MS (APCI) 426 (M+H⁺, 100%).

b) 2-Methyl-2-[[2-(methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

To a solution of the product from step a) (0.043g) in methanol (5ml) was added a saturated solution of methanolic methylamine (20ml) and the mixture stirred for 30 mins. The mixture was evaporated to dryness and purified (HPLC, Novapak®C18 column, 0.1% aqueous ammonium acetate:acetonitrile, isocratic elution 70:30 over 15 minutes) to afford the title compound (0.026g).

MS (APCI) 376 (M+H⁺, 100%).

NMR δH (d₆-DMSO) 8.49 (1H, d), 7.42-7.21 (5H, m), 6.34 (1H, s), 4.87 (1H, s), 4.35 (2H, s), 3.56 (2H, d), 2.94 (3H, d), 1.33 (6H, s).

Example 123

2-[[2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(phenylmethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

a) 2-[[2-Bromo-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

The sub-title compound was prepared by the method of Example 122, step a) using the product from Example 116. Purification (SiO₂, ethyl acetate: dichloromethane 1:9 as eluant) gave the subtitle compound (0.16g).

MS (APCI) 461 (M+H⁺, 100%).

b) 2-[[2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(phenylmethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

Prepared by the method of Example 122, step b) using the product from step a).

Purification (SiO₂, ethyl acetate: dichloromethane 1:9 as eluant) gave the title compound (0.051g).

MS (APCI) 488 ($M+H^+$, 100%).

NMR δ H (d_6 -DMSO) 9.08(1H, d), 7.38-7.12 (8H, m), 6.42 (1H, s), 4.82 (1H, t), 4.59 (2H, s), 4.42 (2H, s), 3.54 (2H, d), 1.29 (6H, s).

5 **Example 124**

5-[[2,3-Difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

To a solution of the product from Example 3 (1.0g) in tetrahydrofuran (50ml) was added isoamyl nitrite (3ml) and the mixture heated at 70°C for 2 hours. The mixture was
10 evaporated to dryness and purified (SiO₂, ethyl acetate: chloroform 1:9 as eluant) to give the title compound (0.61g).

MS (APCI) 512 ($M+H^+$, 100%).

NMR δ H (d_6 -DMSO) 13.19(1H, s), 9.61(1H, d), 7.44-7.33 (2H, m), 7.22-15 (1H, m), 4.59
15 (2H, s).

Example 125-148

Example 125 to 148 were prepared by heating, the product of Example 113, step a) (5×10^{-6}
20 moles) with the appropriate amine (10 equivalents) and *N*-ethyldiisopropylamine (20 equivalents) in *N*-methylpyrrolidinone (0.3 ml) in a sealed vessel at 120°C for 16 hours.

Example 125

(±)-2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-
25 yl]amino]-1-butanol

MS (APCI) 398 ($M+H^+$, 100%).

Example 126

(1*S*,2*S*)-2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-cyclohexanol

5 MS (APCI) 424 (M+H⁺, 100%).

Example 127

(±)-2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

10 MS (APCI) 384 (M+H⁺, 100%)

Example 128

2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol

15 MS (APCI) 370 (M+H⁺, 100%).

Example 129

20 (2*R*)-2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol

MS (APCI) 426 (M+H⁺, 100%).

Example 130

(±)-1-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol

25 MS (APCI) 384 (M+H⁺, 100%).

Example 131

2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1,3-propanediol

5 MS (APCI) 414 ($M+H^+$, 100%).

Example 132

1-[[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]-cyclohexanol

10 MS (APCI) 438 ($M+H^+$, 100%).

Example 133

(2*R*)-2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

15 MS (APCI) 398 ($M+H^+$, 100%).

Example 134

2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-(2-aminoethyl)amino]-1-ethanol

20 MS (APCI) 413 ($M+H^+$, 100%).

Example 135

2-[2-[[2-Amino-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethoxy]-1-ethanol

25 MS (APCI) 414 ($M+H^+$, 100%).

Example 136

(α S)- α -[(1*R*)-1-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl)methylamino]ethyl]-benzenemethanol

5 MS (APCI) 474 (M+H⁺, 100%).

Example 137

1-[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-piperidinol

10

MS (APCI) 410 (M+H⁺, 100%).

Example 138

5-[[2,3-Difluorophenyl)methyl]thio]-*N*⁷-ethyl-thiazolo[4,5-*d*]pyrimidine-2,7-diamine

15

MS (APCI) 354 (M+H⁺, 100%).

Example 139

5-[[2,3-Difluorophenyl)methyl]thio]-*N*⁷-(2-propenyl)-thiazolo[4,5-*d*]pyrimidine-2,7-diamine

20

MS (APCI) 366 (M+H⁺, 100%).

Example 140

25 **2-Bromo-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one**

To a solution of the product from Example 9 (2g) in bromoform (100ml) was added isoamyl nitrite (2ml) and the mixture heated at 80°C for 2 hour. The mixture was evaporated to dryness and purified (SiO₂, dichloromethane as eluant) to give the title compound (0.76g).

30

MS (APCI) 355, 354 (M+H⁺), 354 (100%).

Example 141

5 (1*S*,2*S*)-2-[[2-Amino-5-[[*(*2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-phenyl-1,3-propanediol

MS (APCI) 476 (M+H⁺, 100%).

10 **Example 142**

2-[[2-Amino-5-[[*(*2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,3-propanediol

MS (APCI) 400 (M+H⁺, 100%).

15

Example 143

2-[[2-Amino-5-[[*(*2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol

20 MS (APCI) 370 (M+H⁺, 100%).

Example 144

(±)-5-[[*(*2,3-Difluorophenyl)methyl]thio]-*N*⁷-(2-methoxy-1-methylethyl)-thiazolo[4,5-*d*]pyrimidine-2,7-diamine

25

MS (APCI) 398 (M+H⁺, 100%).

Example 145

*N*⁷-Cyclopropyl-5-[[*(*2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine

30

MS (APCI) 366 ($M+H^+$, 100%).

Example 146

5 **(±)-2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol**

MS (APCI) 384 ($M+H^+$, 100%).

10 **Example 147**

4-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

MS (APCI) 398 ($M+H^+$, 100%).

15

Example 148

5-[[2,3-Difluorophenyl)methyl]thio]-*N*⁷-[2-(1*H*-imidazol-4-yl)ethyl]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine

20 MS (APCI) 420 ($M+H^+$, 100%).

Example 149-165

The compounds of Example 149 to 165 were prepared by heating 2-[[2-bromo-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol
25 (prepared according to the method of Example 122, step a) using the product of Example 116) (5×10^{-6} moles) with the appropriate amine (2 equivalents) and *N*-ethyl-diisopropylamine (2 equivalents) in tetrahydrofuran (0.5 ml) at 50-60°C for 16 hours.

Example 149

***N*-[5-[[*(2,3-Difluorophenyl)methyl*]thio]-7-[(2-hydroxy-1,1-dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-2-yl]-serine, methyl ester**

5 MS (APCI) 500 ($M+H^+$, 100%).

Example 150

2-[[5-[[*(2,3-Difluorophenyl)methyl*]thio]-2-[(1-methylethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

10 MS (APCI) 440 ($M+H^+$, 100%).

Example 151

2-[[5-[[*(2,3-Difluorophenyl)methyl*]thio]-2-(ethylamino)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

15 MS (APCI) 426 ($M+H^+$, 100%).

Example 152

2-[[5-[[*(2,3-Difluorophenyl)methyl*]thio]-2-[[2-(1*H*-indol-3-yl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

MS (APCI) 541 ($M+H^+$, 100%).

Example 153

2-[[5-[[*(2,3-Difluorophenyl)methyl*]thio]-2-[(1-naphthalenylmethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

30 MS (APCI) 538 ($M+H^+$, 100%).

Example 154

2-[[5-[[2,3-Difluorophenyl)methyl]thio]-2-[(1,2-diphenylethyl)amino]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-2-methyl-1-propanol

5

MS (APCI) 578 (M+H⁺, 100%).

Example 155

2-[[5-[[2,3-Difluorophenyl)methyl]thio]-2-[(2,2,2-trifluoroethyl)amino]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-2-methyl-1-propanol

10

MS (APCI) 480 (M+H⁺, 100%).

Example 156

2-[[5-[[2,3-Difluorophenyl)methyl]thio]-2-[(3,4,5-
trimethoxyphenyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-
propanol

15

MS (APCI) 578 (M+H⁺, 100%).

20

Example 157

2-[[5-[[2,3-Difluorophenyl)methyl]thio]-2-[(1,1-dimethylethyl)amino]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-2-methyl-1-propanol

25

MS (APCI) 454 (M+H⁺, 100%).

Example 158

2-[[5-[[2,3-Difluorophenyl)methyl]thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-2-methyl-1-propanol

30

MS (APCI) 508 (M+H⁺, 100%).

Example 159

2-[[5-[[2,3-Difluorophenyl)methyl]thio]-2-[(4-methylcyclohexyl)amino]thiazolo[4,5-
5 *d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

MS (APCI) 494 (M+H⁺, 100%).

Example 160

10 2-[[5-[[2,3-Difluorophenyl)methyl]thio]-7-[(2-hydroxy-1,1-
dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide

MS (APCI) 455 (M+H⁺, 100%).

15 **Example 161**

2-[[2-[[2-(4-Aminophenyl)ethyl]amino]-5-[[2,3-
difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-
propanol

20 MS (APCI) 517 (M+H⁺, 100%).

Example 162

2-[[5-[[2,3-Difluorophenyl)methyl]thio]-2-[(2-fluoroethyl)amino]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-2-methyl-1-propanol

25 MS (APCI) 444 (M+H⁺, 100%).

Example 163

30 2-[[2-(Cyclopropylamino)-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-2-methyl-1-propanol

MS (APCI) 438 ($M+H^+$, 100%).

Example 164

5 **(±)-2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-7-[(2-hydroxy-1,1-dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-pentanol**

MS (APCI) 484 ($M+H^+$, 100%).

10 **Example 165**

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(2-hydroxyethoxy)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

15 MS (APCI) 486 ($M+H^+$, 100%).

Example 166

2-Bromo-5-[[[(2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

20 To a solution of the product from Example 3 (0.2g) in bromoform (5ml) was added isoamyl nitrite (0.25ml) and the mixture heated at 70°C for 1 hour. The mixture was evaporated to dryness and purified (SiO_2 , dichloromethane as eluant) to give the title compound (0.08g).

25 NMR δ_H (d_6 -DMSO) 7.42-7.14 (3H, m), 4.55 (2H, s).

Example 167-173

The compounds of Example 167 to 173 were prepared by heating, the product of Example 166 with the appropriate amine (1.2 equivalents) and *N*-ethyldiisopropylamine (0.1 ml) in tetrahydrofuran (0.2 ml) at 40°C for 16 hours.

Example 167

N-[5-[[2,3-Difluorophenyl)methyl]thio]-6,7-dihydro-7-oxo-thiazolo[4,5-*d*]pyrimidin-2-yl]-DL-serine, methyl ester

MS (APCI) 429 (M+H⁺, 100%).

Example 168

5-[[2,3-Difluorophenyl)methyl]thio]-2-[(1-methylethyl)amino]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

MS (APCI) 369 (M+H⁺, 100%).

Example 169

5-[[2,3-Difluorophenyl)methyl]thio]-2-[[2-(1*H*-indol-3-yl)ethyl]amino]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one.

MS (APCI) 470 (M+H⁺, 100%).

Example 170

2-[[5-[[2,3-Difluorophenyl)methyl]thio]-6,7-dihydro-7-oxo-thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide

MS (APCI) 384 (M+H⁺, 100%).

Example 171

2-[[2-(4-Aminophenyl)ethyl]amino]-5-[[2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

5 MS (APCI) 446 (M+H⁺, 100%).

Example 172

5-[[2,3-Difluorophenyl)methyl]thio]-2-[(2-fluoroethyl)amino]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

10 MS (APCI) 373 (M+H⁺, 100%).

Example 173

5-[[2,3-Difluorophenyl)methyl]thio]-2-[[2-(2-hydroxyethoxy)ethyl]amino]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

15 MS (APCI) 415 (M+H⁺, 100%).

Example 174-218

20 Example 174 to 218 were prepared by heating the product of Example 122, step a) (5x10⁻⁶ moles) with the appropriate amine (2 equivalents) and *N*-ethyldiisopropylamine (2 equivalents) in *N*-methylpyrrolidinone (0.1 ml) in a sealed vessel at 60°C for 5 hours.

Example 174

2-[[2-(Cyclohexylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

25 MS (APCI) 444 (M+H⁺, 100%).

Example 175

2-[[2-[(1,1-Dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

5 MS (APCI) 418 (M+H⁺, 100%).

Example 176

N-[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]-DL-alanine, methyl ester

10 MS (APCI) 448 (M+H⁺, 100%).

Example 177

4-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-cyclohexanol

15 MS (APCI) 460 (M+H⁺, 100%).

Example 178

2-Methyl-2-[[2-[(4-phenylbutyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

20 MS (APCI) 494 (M+H⁺, 100%).

Example 179

2-Methyl-2-[[5-[(phenylmethyl)thio]-2-[(tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

30 MS (APCI) 446 (M+H⁺, 100%).

Example 180

2-Methyl-2-[[2-[(1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

5 MS (APCI) 404 ($M+H^+$, 100%).

Example 181

2-[[2-[[2-(4-Aminophenyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

10 MS (APCI) 481 ($M+H^+$, 100%).

Example 182

15 *N*-[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]-L-valine, ethyl ester

MS (APCI) 490 ($M+H^+$, 100%).

Example 183

20 *(2S)*-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-4-methyl-pentanamide.

MS (APCI) 475 ($M+H^+$, 100%).

Example 184

2-Methyl-2-[[2-[(2-phenylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

MS (APCI) 466 ($M+H^+$, 100%).

Example 185

2-[[2-[[4-Aminophenyl)methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

5 MS (APCI) 467 (M+H⁺, 100%).

Example 186

2-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

10 MS (APCI) 472 (M+H⁺, 100%).

Example 187

2-[[2-[(2-Fluoroethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-
15 yl]amino]-2-methyl-1-propanol

MS (APCI) 408 (M+H⁺, 100%).

Example 188

20 2-Methyl-2-[[2-[[3-nitrophenyl)methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

MS (APCI) 497 (M+H⁺, 100%).

Example 189

(*αR*)-*α*-[(1*S*)-1-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenemethanol

MS (APCI) 496 (M+H⁺, 100%).

Example 190

2-Methyl-2-[[5-[(phenylmethyl)thio]-2-[(3,4,5-trimethoxyphenyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

5 MS (APCI) 542 (M+H⁺, 100%).

Example 191

2-Methyl-2-[[2-[(1*R*-trans)-(2-phenylcyclopropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

10 MS (APCI) 478 (M+H⁺, 100%).

Example 192

2-[[2-[[2-(1*H*-Indol-3-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

15 MS (APCI) 505 (M+H⁺, 100%).

Example 193

2-[[2-[(1,1-Dimethylpropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

MS (APCI) 432 (M+H⁺, 100%).

Example 194

(±)-2-Methyl-2-[[2-[(1-methylbutyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

MS (APCI) 432 (M+H⁺, 100%).

Example 195

(±)-2-Methyl-2-[[2-[(1-methylhexyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

5 MS (APCI) 460 (M+H⁺, 100%).

Example 196

2-[[2-[[2-(2-Aminophenyl)methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

10

MS (APCI) 467 (M+H⁺, 100%).

Example 197

2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1,3-propanediol

15

MS (APCI) 436 (M+H⁺, 100%).

Example 198

2-[[2-[[2-(Ethylthio)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

20

MS (APCI) 450 (M+H⁺, 100%).

Example 199

(2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-3,3-dimethyl-1-butanol

25

MS (APCI) 462 (M+H⁺, 100%).

30

Example 200

(αS)- α -[(1*R*)-1-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-2-methoxyethyl]-benzenemethanol

5

MS (APCI) 526 ($M+H^+$, 100%).

Example 201

2-[[2-(Ethylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

10

MS (APCI) 390 ($M+H^+$, 100%).

Example 202

2-[[2-[[[3-Fluoro-5-(trifluoromethyl)phenyl]methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

15

MS (APCI) 538 ($M+H^+$, 100%).

Example 203

(\pm)-2-Methyl-2-[[2-[(1-methylpropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

20

MS (APCI) 418 ($M+H^+$, 100%).

25

Example 204

2-[[2-[[[4-Methoxyphenyl]methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

30

MS (APCI) 482 ($M+H^+$, 100%).

Example 205

2-[[2-[(2-Hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

5

MS (APCI) 406 ($M+H^+$, 100%).

Example 206

2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

10

MS (APCI) 456 ($M+H^+$, 100%).

Example 207

2-[[2-[(Diphenylmethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

15

MS (APCI) 528 ($M+H^+$, 100%).

Example 208

(2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-butanol

20

MS (APCI) 434 ($M+H^+$, 100%).

25

Example 209

2-[[2-[(2,2-Diethoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

30

MS (APCI) 478 ($M+H^+$, 100%).

Example 210

4-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-butanol

5

MS (APCI) 434 ($M+H^+$, 100%).

Example 211

(1*S*,2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-cyclohexanol.

10

MS (APCI) 460 ($M+H^+$, 100%).

Example 212

(±)-2-[[2-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

15

MS (APCI) 420 ($M+H^+$, 100%).

Example 213

2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol

20

MS (APCI) 450 ($M+H^+$, 100%).

25

Example 214

(±)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-pentanol

30

MS (APCI) 448 ($M+H^+$, 100%).

Example 215

2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide

5

MS (APCI) 419 ($M+H^+$, 100%).

Example 216

(±)-2-[[2-[[1-(4-Fluorophenyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-propanol

10

MS (APCI) 484 ($M+H^+$, 100%).

Example 217

(1*R*,2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-cyclohexanol

15

MS (APCI) 460 ($M+H^+$, 100%).

Example 218

(αS)- α -[(1*R*)-1-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenemethanol

20

MS (APCI) 496 ($M+H^+$, 100%).

25

Example 219

2-Bromo-7-chloro-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine

To a solution of the product from Example 1, step a) (10g) in bromoform (300ml) was added *t*-butylnitrite (10ml) and the mixture heated at 60°C for 30 mins. The mixture was

30

evaporated to dryness then purified (SiO₂, isohexane: dichloromethane 1:1 as eluant) to give the title compound (7.5g).

MS (APCI) 373 (M+H⁺, 100%).

5 NMR δ H (d₆-DMSO) 7.47-7.24 (5H, m), 4.49 (2H, s).

Example 220

7-Chloro-*N*-methyl-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidin-2-amine

10 A solution of the product from Example 219 (0.3g) in tetrahydrofuran (2ml) containing methylamine (2.0 molar in THF:0.81ml) was stirred for 16 hours. The mixture was evaporated to dryness then purified (SiO₂, ethyl acetate:dichloromethane 1:9 as eluant) to give the title compound (295mg).

15 MS (APCI) 323 (M+H⁺, 100%).

NMR δ H (d₆-DMSO) 9.30 (1H, s), 7.46-7.22 (5H, m), 4.40 (2H, s), 3.05 (3H, s).

Example 221-223

20 Examples 221 to 223 were prepared by heating the product of Example 220 (2.5x10⁻⁶ moles) with the appropriate amine (2 equivalents) and *N*-ethyl-diisopropylamine (3 equivalents) in *N*-methylpyrrolidinone (0.1ml) in a sealed vessel at 100°C for 10 hours.

Example 221

25 (±)-2-[[2-(Methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

MS (APCI) 362 (M+H⁺, 100%).

Example 222

(2*R*)-4-Methyl-2-[[2-(methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol

5 MS (APCI) 404 ($M+H^+$, 100%).

Example 223

***N*-[2-(Methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester**

10

MS (APCI) 420 ($M+H^+$, 100%).

Example 224

7-Chloro-5-[(phenylmethyl)thio]-*N*-[(tetrahydro-2-furanyl)methyl]-thiazolo[4,5-*d*]pyrimidin-2-amine

15

Prepared according to the method of Example 220 using the product of Example 219 and tetrahydrofurfurylamine.

20 MS (APCI) 393 ($M+H^+$, 100%).

NMR δ H (d_6 -DMSO) 9.50 (1H, s), 7.47-7.19 (5H, m), 4.39 (2H, s), 4.06 (1H, m) 3.82 (1H, m), 3.66 (2H, m), 3.50 (1H, m), 2.00-1.53 (4H, m).

Examples 225-228

25

Examples 225-228 were prepared by the method of Example 221, using the product of Example 224.

Examples 225

(±)-2-[[5-[(Phenylmethyl)thio]-2-[[[(tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

5 MS (APCI) 446 (M+H⁺, 100%).

Examples 226

(±)-2-[[5-[(Phenylmethyl)thio]-2-[[[(tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

10 MS (APCI) 432 (M+H⁺, 100%).

Examples 227

(2*R*)-4-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[[(tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol

15 MS (APCI) 474 (M+H⁺, 100%).

Examples 228

20 *N*-[5-[(Phenylmethyl)thio]-2-[[[(tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester

MS (APCI) 490 (M+H⁺, 100%).

Example 229

25 2-[2-[[7-Chloro-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethoxy]-1-ethanol

Prepared according to the method of Example 220 using the product of Example 219 (0.3g)
30 and 2-(2-aminoethoxy)ethanol.

MS (APCI) 397 ($M+H^+$, 100%).

Example 230

5 (±)-2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-1-propanol

Prepared by the method of Example 221, using the product of Example 229.

10 MS (APCI) 436 ($M+H^+$, 100%).

Example 231

4-[2-[[7-Chloro-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-
benzenesulfonamide

15 A solution of the product from Example 219 (0.3g) in tetrahydrofuran (2ml) containing 4-
(2-aminoethyl)benzenesulfonamide (0.161 g) and *N*-ethyl-diisopropylamine (0.5 ml) was
stirred for 16 hours. The mixture was evaporated to dryness then purified (SiO_2 , ethyl
acetate:dichloromethane 4:6 as eluant) to give the title compound (310mg).

20

MS (APCI) 492 ($M+H^+$, 100%).

NMR δ H (d_6 -DMSO) 9.45 (1H, s), 7.78-7.23 (9H, m), 4.41 (2H, s), 3.77 (2H, s) 3.02 (2H,
t).

25 Examples 232-235

Examples 232-235 were prepared by the method of Example 221, using the product of
Example 231.

Example 232

(±)-4-[2-[[7-[[1-(Hydroxymethyl)propyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide

5 MS (APCI) 545 (M+H⁺, 100%).

Example 233

(±)-4-[2-[[7-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide

10 MS (APCI) 531 (M+H⁺, 100%).

Example 234

4-[2-[[7-[(1*R*)-1-(Hydroxymethyl)-3-methylbutyl]amino]-5-
15 [(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide.

MS (APCI) 573 (M+H⁺, 100%).

Example 235

20 (±)-4-[2-[[7-[(2-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide

MS (APCI) 531 (M+H⁺, 100%).

Example 236

7-Chloro-*N*-[2-(1*H*-imidazol-4-yl)ethyl]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidin-2-amine

Prepared according to the method of Example 231 using the product of Example 219 and
30 histamine.

MS (APCI) 403 ($M+H^+$, 100%).

NMR δ H (d_6 -DMSO) 11.86 (1H, s), 9.42 (1H, s), 7.56 (1H, s), 7.56-7.23 (5H, m), 6.87 (1H, s), 4.41 (2H, s) 3.73 (2H, m), 2.85 (2H, t).

5

Examples 237-248

Examples 237-248 were prepared by the method of Example 221, using the product of Example 236.

10

Example 237

*N*⁷-Ethyl-*N*²-[2-(1*H*-imidazol-4-yl)ethyl]-5-[(phenylmethyl)thiothiazolo[4,5-*d*]pyrimidine-2,7-diamine

15

MS (APCI) 412 ($M+H^+$, 100%).

Example 238

*N*²-[2-(1*H*-Imidazol-4-yl)ethyl]-5-[(phenylmethyl)thio]-*N*⁷-(3-pyridinylmethyl)-thiazolo[4,5-*d*]pyrimidine-2,7-diamine

20

MS (APCI) 475 ($M+H^+$, 100%).

Example 239

(±)-2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

25

MS (APCI) 456 ($M+H^+$, 100%).

Example 240

(±)-2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

5 MS (APCI) 442 (M+H⁺, 100%).

Example 241

(2*R*)-2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol

10 MS (APCI) 484 (M+H⁺, 100%).

Example 242

15 (±)-1-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol

MS (APCI) 442 (M+H⁺, 100%).

Example 243

20 5-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol

MS (APCI) 470 (M+H⁺, 100%).

Example 244

1-[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-(phenylmethyl)-4-piperidinol

MS (APCI) 558 (M+H⁺, 100%).

Example 245

(±)-1-[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinecarboxamide

5 MS (APCI) 495 (M+H⁺, 100%).

Example 246

2-[Ethyl[2-[[2-(1*H*-imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol

10

MS (APCI) 456 (M+H⁺, 100%).

Example 247

*N*²-[2-(1*H*-Imidazol-4-yl)ethyl]-*N*⁷,*N*⁷-dimethyl-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine

15

MS (APCI) 412 (M+H⁺, 100%).

Example 248

*N*⁷-[2-(Diethylamino)ethyl]-*N*⁷-ethyl-*N*²-[2-(1*H*-imidazol-4-yl)ethyl]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine

20

MS (APCI) 511 (M+H⁺, 100%).

Example 249

7-Chloro-*N*-(2-phenoxyethyl)-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidin-2-amine

25

Prepared by the method of Example 231, using the product of Example 219 and 2-phenoxyethylamine.

30

MS (APCI) 429 (M+H⁺, 100%).

NMR δ H (d₆-DMSO) 9.65 (1H, s), 7.46-6.93 (10H, m), 4.41 (2H, s), 4.20 (2H, t), 3.87 (2H, m).

5

Examples 250-255

Examples 250-255 were prepared by the method of Example 221, using the product of Example 249.

10

Example 250

*N*²-(2-Phenoxyethyl)-5-[(phenylmethyl)thio]-*N*⁷-(3-pyridinylmethyl)-thiazolo[4,5-*d*]pyrimidine-2,7-diamine

15

MS (APCI) 501 (M+H⁺, 100%).

Example 251

*N*²-(2-Phenoxyethyl)-*N*⁷-[1-(phenylmethyl)-4-piperidinyl]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine

20

MS (APCI) 583 (M+H⁺, 100%).

Example 252

2-Methyl-2-[[2-[(2-phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol.

25

MS (APCI) 482 (M+H⁺, 100%).

Example 253

(±)-2-[[2-[(2-Phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

5 MS (APCI) 468 (M+H⁺, 100%).

Example 254

(2*R*)-4-Methyl-2-[[2-[(2-phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol

10 MS (APCI) 510 (M+H⁺, 100%).

Example 255

15 1-[2-[(2-Phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-(phenylmethyl)-4-piperidinol.

MS (APCI) 584 (M+H⁺, 100%).

Example 256

20 7-Chloro-*N*-cyclopropyl-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidin-2-amine,

Prepared by the method of Example 220, using the product of Example 219 and cyclopropanamine.

25 MS (APCI) 351, 349 (M+H⁺, 100%).

NMR δH (d₆-DMSO) 7.46-7.22 (5H, m), 4.41 (2H, s), 2.85-2.80 (1H, m), 0.90-0.84 (2H, m), 0.71-0.66 (2H, m).

Examples 257-260

Example 257 to 260 were prepared by the method of Example 221 using the product of Example 256.

5

Example 257

2-[[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo [4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

10 MS (APCI) 402 ($M+H^+$, 100%).

Example 258

2-[[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo [4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

15

MS (APCI) 388 ($M+H^+$, 100%).

Example 259

(2*R*)-2-[[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo [4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol

20

MS (APCI) 430 ($M+H^+$, 100%).

Example 260

***N*-[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester**

25

MS (APCI) 446 ($M+H^+$, 100%).

Example 261**2-[[7-Chloro-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-pentanol**

Prepared by the method of Example 231, using the product of Example 219 and

5 2-amino-1-pentanol.

MS (APCI) 397, 395 ($M+H^+$, 100%).

1H NMR (d_6 -DMSO) δ 9.29 (1H, s), 7.46-7.22 (5H, m), 4.93 (1H, t), 4.39 (2H, s), 4.07-
4.00 (1H, m), 3.50 (2H, t), 1.63-1.43 (2H, m), 1.38-1.32 (2H, m), 0.89 (3H, t).

Examples 262-264

Example 262 to 264 were prepared by the method of Example 221 using the product of
Example 261.

Example 262**(2*R*)-2-[[2-[[1-(Hydroxymethyl)butyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol**

20 MS (APCI) 476 ($M+H^+$, 100%).

Example 263***N*-[2-[[1-(Hydroxymethyl)butyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester**

25 MS (APCI) 492 ($M+H^+$, 100%).

Example 264**(\pm)-2-[[7-[Cyclohexyl(2-hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-pentanol**

MS (APCI) 502 ($M+H^+$, 100%).

Examples 265-270

- 5 The following examples were prepared by the method of Example 221, using the product of Example 229.

Examples 265

- 10 **2-[2-[[7-(Ethylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethoxy]-1-ethanol**

MS (APCI) 406 ($M+H^+$, 100%).

Examples 266

- 15 **2-[2-[[7-[(1-Methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethoxy]-1-ethanol**

MS (APCI) 420 ($M+H^+$, 100%).

20 Examples 267

- (±)-2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,**

MS (APCI) 450 ($M+H^+$, 100%).

25

Examples 268

- 2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol**

- 30 MS (APCI) 450 ($M+H^+$, 100%).

Examples 269

(2*R*)-2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

5

MS (APCI) 478 (M+H⁺, 100%).

Examples 270

2-[Cyclohexyl-[2-[[2-(2-hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol

10

MS (APCI) 504 (M+H⁺, 100%).

Examples 271

(±)-2-[[5-[(Phenylmethyl)thio]-2-(4-piperidinylamino)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

15

a) 7-Chloro-5-[(phenylmethyl)thio]-*N*-(4-piperidinyl)-thiazolo[4,5-*d*]pyrimidin-2-amine

20

A solution of the product from Example 219 (0.3g) in tetrahydrofuran (2ml) containing 4-amino-1-piperidinecarboxylic acid, 1,1-dimethylethyl ester (0.161g) and *N*-ethyl-diisopropylamine (0.5 ml) was stirred for 16 hours before evaporating to dryness. The residue was taken into dichloromethane (30ml) and trifluoroacetic acid (3ml) added. The solution was stirred for 30 minutes then concentrated to give the title compound (310mg).

25

MS (APCI) 392 (M+H⁺, 100%).

NMR δH (d₆-DMSO) 9.47 (1H, s), 8.64-8.48 (2H, s), 7.46-7.23 (5H, s), 4.41 (2H, s) 4.21 (1H, s), 3.34 (2H, m), 3.09 (2H, m), 2.18 (2H, m), 1.69 (2H, m).

30

b) (±)-2-[[5-[(Phenylmethyl)thio]-2-(4-piperidinylamino)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

5 Prepared by the method of Example 221, using the product of step a).

MS (APCI) 431 (M+H⁺, 100%).

Example 272

10 ***N*-[2-[[7-Chloro-5-[(phenylmethyl)thio]thiazolo[4,5 *d*]pyrimidin-2-yl]amino]ethyl]-acetamide**

Prepared according to the method of Example 231 using the product of Example 219.

15 MS (APCI) 396, 394 (M+H⁺), 394 (100%).

Examples 273-276

Examples 273-276 were prepared by the method of Example 221 using the product of Example 272.

20

Example 273

(±)-*N*-[2-[[7-[[1-(Hydroxymethyl)propyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide

25 MS (APCI) 447 (M+H⁺, 100%)

Examples 274

(±)-*N*-[2-[[7-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide,

30

MS (APCI) 433 ($M+H^+$, 100%)

Examples 275

5 *N*-[2-[[7-[(2-Hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide

MS (APCI) 419 ($M+H^+$, 100%)

Example 276

10 *N*-[2-[[7-[(1*R*)-1-(Hydroxymethyl)-3-methylbutyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide,

MS (APCI) 475 ($M+H^+$, 100%)

15 Example 277

7-Chloro-5-[(phenylmethyl)thio]-*N*-[2-(2-thienyl)ethyl]-thiazolo[4,5-*d*]pyrimidin-2-amine

20 Prepared by the method of Example 231, using the product of Example 219 and 2-(2-thienyl)ethylamine.

MS (APCI), 420, 418 ($M+H^+$), 418 (100%).

NMR δ H (d_6 -DMSO) 7.45-7.32 (5H, m), 6.96 (2H, m), 4.40 (2H, s), 3.78 (2H, s), 3.16 (2H, t).

25

Examples 278-284

Examples 276 to 284 were prepared by the method of Example 221 using the product of Example 277.

Example 278

*N*⁷-(2-Methoxyethyl)-5-[(phenylmethyl)thio]-*N*²-[2-(2-thienyl)ethyl]thiazolo[4,5-*d*]pyrimidine-2,7-diamine

5 MS (APCI) 457 (M+H⁺, 100%).

Example 279

*N*⁷-(2-Ethoxyethyl)-5-[(phenylmethyl)thio]-*N*²-[2-(2-thienyl)ethyl]thiazolo[4,5-*d*]pyrimidine-2,7-diamine

10 MS (APCI) 471 (M+H⁺, 100%).

Example 280

*N*⁷-(2,2-Dimethylpropyl)-5-[(phenylmethyl)thio]-*N*²-[2-(2-thienyl)ethyl]thiazolo[4,5-*d*]pyrimidine-2,7-diamine

15 MS (APCI) 469 (M+H⁺, 100%).

Example 281

20 (2*R*)-4-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol

MS (APCI) 499 (M+H⁺, 100%).

Example 282

(±)-1-[[5-[(Phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol

MS (APCI) 457 (M+H⁺, 100%).

30

Example 283

(±)-2-[[5-[(Phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

5 MS (APCI) 471 ($M+H^+$, 100%).

Example 284

(±)-2-[[5-[(Phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

10 MS (APCI) 457 ($M+H^+$, 100%).

Example 285

2-[[7-Chloro-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-ethanol

15 Prepared by the method of Example 231, using the product of Example 219 and 2-aminoethanol.

MS (APCI) 355, 353 ($M+H^+$), 353 (100%).

20 NMR δ H (d_6 -DMSO) 9.48 (1H, s), 7.45-7.30 (5H, m), 4.95 (1H, t), 4.40 (2H, s), 3.60 (4H, m).

Examples 286-287

Examples 286 to 287 were prepared by the method of Example 221 using the product of
25 Example 285.

Example 286

(2*R*)-2-[[2-[(2-Hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol

30

MS (APCI) 433 ($M+H^+$, 100%).

Example 287

(±)-*N,N*-Diethyl-1-[2-[(2-hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
5 *d*]pyrimidin-7-yl]-3-piperidinecarboxamide

MS (APCI) 500 ($M+H^+$, 100%).

Example 288

10 3-[[7-Chloro-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-propanol

Prepared by the method of Example 231, using the product of Example 219 and 3-aminopropanol.

15 MS (APCI) 369, 367 ($M+H^+$), 367 (100%).

NMR δ H (d_6 -DMSO) 9.36 (1H, s), 7.43-7.27 (5H, m), 4.57 (1H, t), 4.40 (2H, s), 3.49 (4H, m), 1.75 (2H, m).

Examples 289-291

20 Examples 289-291 were prepared by the method of Example 221 using the product of Example 288.

Example 289

(2*R*)-2-[[2-[(3-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
25 *d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol

MS (APCI) 447 ($M+H^+$, 100%).

Example 290

(±)-2-[[2-[(3-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol

5 MS (APCI) 419 (M+H⁺, 100%).

Example 291

(±)-2-[[2-[(3-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol

10 MS (APCI) 405 (M+H⁺, 100%)

Example 292

2-[[7-Chloro-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide

15 Prepared by the method of Example 231, using the product of Example 219 and glycineamide hydrochloride.

MS (APCI) 368, 66 (M+H⁺), 366 (100%).

20 NMR δH (d₆-DMSO) 7.61 (1H, s), 7.45-7.24 (6H, m), 4.40 (2H, s), 4.14-4.12 (2H, m), 9.57 (1H, s).

Example 293

2-[[7-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide

25 Prepared according to the method of Example 221 using the product of Example 292.

MS (APCI) 404 (M+H⁺, 100%).

Example 294**4-[[7-Chloro-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]-3-azetidiny]-1-piperazinesulfonamide**

- 5 Prepared by the method of Example 231, using the product of Example 219 and 3-azetidiny-1-piperazinesulfonamide.

MS (APCI), 512, 514 ($M+H^+$), 512 (100%).

- 10 NMR δ H (d_6 -DMSO) 7.69-7.22 (5H, m), 6.80 (2H, s), 4.40 (2H, s), 4.34-4.12 (4H, m), 3.56-3.50 (1H, m), 3.40 (4H, s), 3.00 (4H, s).

Example 295**4-[1-[7-[(4-Methylcyclohexyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]-3-azetidiny]-1-piperazinesulfonamide,**

- 15 Prepared by the method of Example 221, using the product of Example 294.

MS (APCI) 588 ($M+H^+$, 100%).

20 **Example 296**

7-Chloro-*N*-[[2-(4-morpholinyl)ethyl]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidin-2-amine

- 25 Prepared by the method of Example 231, using the product of Example 219 and 2-(4-morpholinyl)ethyl]amine.

MS (APCI) 424, 422 ($M+H^+$), 422 (100%).

- 30 NMR δ H (d_6 -DMSO) 9.34 (1H, s), 7.68-7.23 (5H, m), 4.40 (2H, s), 3.59-3.56 (6H, m), 2.54 (2H, t), 2.44-2.41 (4H, m).

Examples 297-300

Examples 297-300 were prepared according to the method of Example 221 using the product of Example 296.

5 Example 297

**3-[[2-[[2-(4-Morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-1-propanol**

MS (APCI) 460 (M+H⁺, 100%).

10

Example 298

**2-Methyl-2-[[2-[[2-(4-morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-1-propanol**

15 MS (APCI) 464 (M+H⁺, 100%).

Example 299

**(±)-2-[[2-[[2-(4-Morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-
d]pyrimidin-7-yl]amino]-1-propanol**

20

MS (APCI) 460 (M+H⁺, 100%).

Example 300

**(2R)-4-Methyl-2-[[2-[[2-(4-morpholinyl)ethyl]amino]-5-
25 [(phenylmethyl)thio]thiazolo[4,5-d]pyrimidin-7-yl]amino]-1-pentanol**

MS (APCI) 502 (M+H⁺, 100%).

Examples 301-302

Examples 301-302 were prepared by the method of Example 12 using the product of Example 140.

5 Example 301

2-[[2-(3,4-Dihydroxyphenyl)ethyl]amino]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

MS (APCI) 427 (M+H⁺, 100%).

10

Example 302

(±)-2-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one

15

MS (APCI) 349 (M+H⁺, 100%).

Pharmacological Data**Ligand Binding Assay**

20

[¹²⁵I]IL-8 (human, recombinant) was purchased from Amersham, U.K. with a specific activity of 2,000Ci/mmol. All other chemicals were of analytical grade. High levels of hrCXCR2 were expressed in HEK 293 cells (human embryo kidney 293 cells ECACC No. 85120602) (Lee *et al.* (1992) *J. Biol. Chem.* **267** pp16283-16291). hrCXCR2 cDNA was amplified and cloned from human neutrophil mRNA. The DNA was cloned into PCRScript (Stratagene) and clones were identified using DNA. The coding sequence was sub-cloned into the eukaryotic expression vector RcCMV (Invitrogen). Plasmid DNA was prepared using Quiagen Megaprep 2500 and transfected into HEK 293 cells using Lipofectamine reagent (Gibco BRL). Cells of the highest expressing clone were harvested in phosphate-buffered saline containing 0.2%(w/v) ethylenediaminetetraacetic acid (EDTA) and centrifuged (200g, 5min.). The cell pellet was resuspended in ice cold homogenisation

30

buffer [10mM HEPES (pH 7.4), 1mM dithiothreitol, 1mM EDTA and a panel of protease inhibitors (1mM phenyl methyl sulphonyl fluoride, 2µg/ml soybean trypsin inhibitor, 3mM benzamidine, 0.5µg/ml leupeptin and 100µg/ml bacitracin)] and the cells left to swell for 10 minutes. The cell preparation was disrupted using a hand held glass mortar/PTFE pestle
5 homogeniser and cell membranes harvested by centrifugation (45 minutes, 100,000g, 4°C). The membrane preparation was stored at -70°C in homogenisation buffer supplemented with Tyrode's salt solution (137mM NaCl, 2.7mM KCl, 0.4mM NaH₂PO₄), 0.1%(w/v) gelatin and 10%(v/v) glycerol.

10 All assays were performed in a 96-well MultiScreen 0.45µm filtration plates (Millipore, U.K.). Each assay contained ~50pM [¹²⁵I]IL-8 and membranes (equivalent to ~200,000 cells) in assay buffer [Tyrode's salt solution supplemented with 10mM HEPES (pH 7.4), 1.8mM CaCl₂, 1mM MgCl₂, 0.125mg/ml bacitracin and 0.1%(w/v) gelatin]. In addition, a compound of formula (I) according to the Examples was pre-dissolved in DMSO and
15 added to reach a final concentration of 1%(v/v) DMSO. The assay was initiated with the addition of membranes and after 1.5 hours at room temperature the membranes were harvested by filtration using a Millipore MultiScreen vacuum manifold and washed twice with assay buffer (without bacitracin). The backing plate was removed from the MultiScreen plate assembly, the filters dried at room temperature, punched out and then
20 counted on a Cobra γ-counter.

The compounds of formula (I) according to the Examples were found to have IC₅₀ values of less than (<) 10µM.

25 **Intracellular Calcium Mobilisation Assay**

Human neutrophils were prepared from EDTA-treated peripheral blood, as previously described (Baly *et al.* (1997) *Methods in Enzymology* 287 pp70-72), in storage buffer [Tyrode's salt solution (137mM NaCl, 2.7mM KCl, 0.4mM NaH₂PO₄) supplemented with 5.7mM glucose and 10mM HEPES (pH 7.4)].

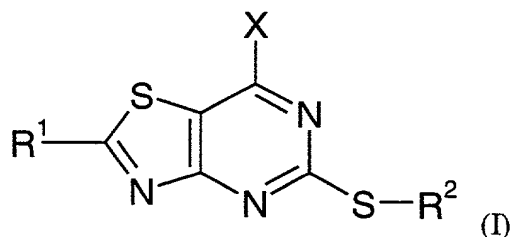
The chemokine GRO α (human, recombinant) was purchased from R&D Systems (Abingdon, U.K.). All other chemicals were of analytical grade. Changes in intracellular free calcium were measured fluorometrically by loading neutrophils with the calcium sensitive fluorescent dye, fluo-3, as described previously (Merritt *et al.* (1990) *Biochem. J.* 269, pp513-519). Cells were loaded for 1 hour at 37°C in loading buffer (storage buffer with 0.1%(w/v) gelatin) containing 5 μ M fluo-3 AM ester, washed with loading buffer and then resuspended in Tyrode's salt solution supplemented with 5.7mM glucose, 0.1%(w/v) bovine serum albumin (BSA), 1.8mM CaCl₂ and 1mM MgCl₂. The cells were pipetted into black walled, clear bottom, 96 well micro plates (Costar, Boston, U.S.A.) and centrifuged (200g, 5 minutes, room temperature).

A compound of formula (I) according to the Examples was pre-dissolved in DMSO and added to a final concentration of 0.1%(v/v) DMSO. Assays were initiated by the addition of an A₅₀ concentration of GRO α and the transient increase in fluo-3 fluorescence (λ_{Ex} =490nm and λ_{Em} = 520nm) monitored using a FLIPR (Fluorometric Imaging Plate Reader, Molecular Devices, Sunnyvale, U.S.A.).

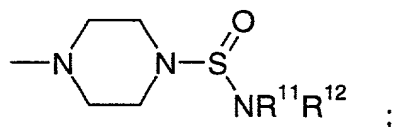
The compounds of formula (I) according to the Examples were tested and found to be antagonists of the CXCR2 receptor in human neutrophils.

CLAIMS

1. A compound of general formula



- 5 wherein R^1 represents a hydrogen atom, or a group $-NR^3R^4$;
 R^3 and R^4 each independently represent a hydrogen atom, or a 4-piperidiny, C_3 - C_6
 cycloalkyl or C_1 - C_8 alkyl group, which latter two groups may be optionally substituted by
 one or more substituent groups independently selected from halogen atoms and $-NR^5R^6$,
 $-CONR^5R^6$, $-OR^7$, $-COOR^7$, $-NR^8COR^9$, $-SR^{10}$, $-SO_2R^{10}$, $-SO_2NR^5R^6$, $-NR^8SO_2R^9$,
 10 morpholinyl, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, tetrahydrofuranyl and aryl groups, wherein
 an aryl substituent group may be a phenyl, naphthyl, thienyl, pyridinyl, imidazolyl or
 indolyl group, each of which may be optionally substituted by one or more substituents
 independently selected from halogen atoms and cyano, nitro, $-NR^5R^6$, $-CONR^5R^6$, $-$
 OR^7 , $-NR^8COR^9$, $-SO_2NR^5R^6$, $-NR^8SO_2R^9$, C_1 - C_6 alkyl and trifluoromethyl groups,
 15 or R^3 and R^4 together with the nitrogen atom to which they are attached form a 4- to
 7-membered saturated heterocyclic ring system, which ring system may be optionally
 substituted by one or more substituent groups independently selected from



- $-NR^5R^6$, $-CONR^5R^6$, $-OR^7$, $-COOR^{10}$, $-NR^8COR^9$, and C_1 - C_6 alkyl optionally
 20 substituted by one or more substituents independently selected from halogen atoms and
 $-NR^{11}R^{12}$ and $-OR^7$ groups;
 X represents a group $-OH$ or $-NR^{13}R^{14}$;

R^{13} and R^{14} each independently represent a hydrogen atom, a 4-piperidinyl group optionally substituted by a C_1 - C_4 alkylphenyl substituent group, or a C_3 - C_7 carbocyclic, C_1 - C_8 alkyl, C_2 - C_6 alkenyl or C_2 - C_6 alkynyl group, which latter four groups may be optionally substituted by one or more substituent groups independently selected from halogen atoms and $-NR^5R^6$, $-CONR^5R^6$, $-OR^7$, $-COOR^7$, $-NR^8COR^9$, $-SR^{10}$, $-SO_2R^{10}$, $-SO_2NR^5R^6$, $-NR^8SO_2R^9$, morpholinyl, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl and aryl groups, wherein an aryl substituent group may be a phenyl, naphthyl, thienyl, pyridinyl, imidazolyl or indolyl group, each of which may be optionally substituted by one or more substituents independently selected from halogen atoms and cyano, nitro, $-NR^5R^6$, $-CONR^5R^6$, $-OR^7$, $-NR^8COR^9$, $-SO_2NR^5R^6$, $-NR^8SO_2R^9$, C_1 - C_6 alkyl and trifluoromethyl groups,

or R^{13} and R^{14} together with the nitrogen atom to which they are attached form a 4- to 7-membered saturated heterocyclic ring system, which ring system may be optionally substituted by one or more substituent groups independently selected from $-NR^5R^6$, $-CONR^5R^6$, $-OR^7$, $-COOR^7$, $-NR^8COR^9$, and C_1 - C_6 alkyl optionally substituted by one or more substituents independently selected from halogen atoms and phenyl, $-NR^{11}R^{12}$ and $-OR^7$ groups;

R^2 represents a C_1 - C_6 alkyl or C_2 - C_6 alkenyl group optionally substituted by a phenyl or phenoxy group, wherein the phenyl or phenoxy group may itself be optionally substituted by one or more substituents independently selected from halogen atoms and nitro, C_1 - C_6 alkyl, trifluoromethyl, $-OR^7$, $-C(O)R^7$, $-SR^{10}$, $-NR^{15}R^{16}$ and phenyl groups;

R^5 and R^6 each independently represent a hydrogen atom or a C_1 - C_6 alkyl or phenyl group, each of which may be optionally substituted by one or more substituent groups independently selected from halogen atoms, phenyl, $-OR^{17}$ and $-NR^{15}R^{16}$, or

R^5 and R^6 together with the nitrogen atom to which they are attached form a 4- to 7-membered saturated heterocyclic ring system optionally comprising a further heteroatom selected from oxygen and nitrogen atoms, which ring system may be optionally substituted by one or more substituent groups independently selected from phenyl, $-OR^{17}$, $-COOR^{17}$, $-NR^{15}R^{16}$, $-CONR^{15}R^{16}$, $-NR^{15}COR^{16}$, $-SONR^{15}R^{16}$, and C_1 - C_6 alkyl

optionally substituted by one or more substituents independently selected from halogen atoms and $-\text{NR}^{15}\text{R}^{16}$ and $-\text{OR}^{17}$ groups;

R^7 and R^9 each independently represent a hydrogen atom or a C_1 - C_6 alkyl or phenyl group, each of which may be optionally substituted by one or more substituent groups

5 independently selected from halogen atoms, phenyl, $-\text{OR}^{17}$ and $-\text{NR}^{15}\text{R}^{16}$; and each of R^8 , R^{10} , R^{11} , R^{12} , R^{15} , R^{16} and R^{17} independently represents a hydrogen atom or a C_1 - C_6 alkyl or phenyl group; with the proviso that when R^1 and X both represent $-\text{NH}_2$, then R^2 does not represent a methyl group;

or a pharmaceutically acceptable salt or solvate thereof.

10

2. A compound according to claim 1, wherein R^1 represents a group $-\text{NR}^3\text{R}^4$.

3. A compound according to claim 1 or claim 2, wherein R^3 and R^4 each independently represent a hydrogen atom, or a 4-piperidinyl, C_3 - C_6 cycloalkyl or C_1 - C_6 alkyl group,

15 which latter two groups may be optionally substituted by one, two, three or four substituent groups independently selected from halogen atoms and $-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{COOR}^7$, $-\text{NR}^8\text{COR}^9$, $-\text{SR}^{10}$, $-\text{SO}_2\text{R}^{10}$, $-\text{SO}_2\text{NR}^5\text{R}^6$, $-\text{NR}^8\text{SO}_2\text{R}^9$, morpholinyl, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, tetrahydrofuranyl and aryl groups, wherein an aryl substituent group may be a phenyl, naphthyl, thienyl, pyridinyl, imidazolyl or indolyl

20 group, each of which may be optionally substituted by one, two, three or four substituents independently selected from halogen atoms and cyano, nitro, $-\text{NR}^5\text{R}^6$, $-\text{CONR}^5\text{R}^6$, $-\text{OR}^7$, $-\text{NR}^8\text{COR}^9$, $-\text{SO}_2\text{NR}^5\text{R}^6$, $-\text{NR}^8\text{SO}_2\text{R}^9$, C_1 - C_4 alkyl and trifluoromethyl groups.

4. A compound according to any one of claims 1 to 3, wherein R^2 represents a

25 C_1 - C_6 alkyl or C_2 - C_6 alkenyl group optionally substituted by a phenyl or phenoxy group, wherein the phenyl or phenoxy group may itself be optionally substituted by one, two, three or four substituents independently selected from halogen atoms and nitro, C_1 - C_4 alkyl, trifluoromethyl, $-\text{OR}^7$, $-\text{C}(\text{O})\text{R}^7$, $-\text{SR}^{10}$, $-\text{NR}^{15}\text{R}^{16}$ and phenyl.

5. A compound according to any one of the preceding claims, wherein X represents $-NR^{13}R^{14}$ and R^{13} and R^{14} each independently represent a hydrogen atom, a 4-piperidinyl group optionally substituted by a C_1 - C_4 alkylphenyl substituent group, or a C_3 - C_7 carbocyclic, C_1 - C_6 alkyl, C_2 - C_6 alkenyl or C_2 - C_6 alkynyl group, which latter four groups may be optionally substituted by one, two, three or four substituent groups independently selected from halogen atoms and $-NR^5R^6$, $-CONR^5R^6$, $-OR^7$, $-COOR^7$, $-NR^8COR^9$, $-SR^{10}$, $-SO_2R^{10}$, $-SO_2NR^5R^6$, $-NR^8SO_2R^9$, morpholinyl, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl and aryl groups, wherein an aryl substituent group may be a phenyl, naphthyl, thienyl, pyridinyl, imidazolyl or indolyl group, each of which may be optionally substituted by one, two, three or four substituents independently selected from halogen atoms and cyano, nitro, $-NR^5R^6$, $-CONR^5R^6$, $-OR^7$, $-NR^8COR^9$, $-SO_2NR^5R^6$, $NR^8SO_2R^9$, C_1 - C_4 alkyl and trifluoromethyl groups.
6. A compound according to claim 1 being selected from:
- (2*R*)-2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,
 (5*S*)-2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,
 2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 5-[[3-Phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[[3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 (±)-2-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,
 2-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethanol,
 5-(Pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[[3-(Dimethylamino)propyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[[2-(Diethylamino)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[[2-(Dimethylamino)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[(3-Hydroxypropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[[2-(Acetyl)amino]ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 (±)-2-[(2,3-Dihydroxypropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,

- 2-[[2-(4-Morpholinyl)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[(2-Methoxyethyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[(1-Methylethyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-(Cyclopropylamino)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 5 (±)-2-[(2-Hydroxypropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[(2-Hydroxy-2-methylpropyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 2-[(2-Hydroxyethyl)amino]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 (2*S*,3*R*)-3-Hydroxy-2-[(7-oxo-5-(pentylthio)-4*H*-thiazolo[4,5-*d*]pyrimidin-2-yl)-
 10 amino)butanamide,
*N*⁷-[3-(Dimethylamino)propyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
*N*⁷-[2-(Diethylamino)ethyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
*N*⁷-[2-(Dimethylamino)ethyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 3-[(2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl)amino]-1-propanol,
 15 *N*⁷-Cyclohexyl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 (±)-3-[(2-Amino-5-((phenylmethyl)thio)thiazolo[4,5-*d*]pyrimidin-7-yl)amino]-1,2-
 propanediol,
*N*⁷-(2-Methoxyethyl)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 5-(Pentylthio)-*N*⁷-propylthiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 20 *N*⁷-Cyclopentyl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
*N*⁷-Cyclopropyl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
*N*⁷-(2-Methylpropyl)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 (±)-1-[(2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl)amino]-2-propanol,
 (exo)-*N*⁷-Bicyclo[2.2.1]hept-2-yl-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 25 2-[2-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethoxy]ethanol,
 (±)-*N*⁷-(2-Methylbutyl)-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 1-[[2-Amino-5-(pentylthio)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-2-propanol,
*N*⁷-[(2-Aminophenyl)methyl]-5-(pentylthio)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,
 2-Amino-5-[(2-phenoxyethyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
 30 (*E*)-2-Amino-5-[(3-phenyl-2-propenyl)thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,

- 2-Amino-5-[[3-[2,4-bis(1,1-dimethylethyl)phenoxy]propyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(4-trifluoromethyl)phenyl]methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(3,5-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 5 2-Amino-5-[[[(2,4-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(3,4-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(3,5-dibromophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(2-nitrophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(2-fluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 10 2-Amino-5-[[[(2-iodophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(3-chlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(2-chlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(4-chloro-2-nitrophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(3-chloro-4-methoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 15 2-Amino-5-[[[(2,3-dichlorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(3,5-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(2,4-bis(trifluoromethyl)phenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(2-bromophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 20 2-Amino-5-[[[(2,3,4-trifluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(3-bromophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-Amino-5-[[[(2-fluoro-3-methylphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 3-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2,2-dimethyl-1-propanol,
- 25 (±)-α-[[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]benzenemethanol,
- (*R*)-β-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]benzenepropanol,
- 2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethanol,

(2*R*)-2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]4-methylpentanol,
(±)-1-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,
(±)-β-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-
5 chlorobenzenepropanol,
(±)-3-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,2-propanediol,
2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]propylamino]ethanol,
(±)-1-[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-pyrrolidinol,
10 (±)-1-[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinol,
1-[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-piperidinol,
3-[[2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2,2-dimethyl-1-propanol,
(±)-2-[[2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-
15 1-butanol,
(±)-α-[[[2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]methyl]benzenemethanol,
4-[[2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,
20 6-[[2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-hexanol,
4-[[2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]cyclohexanol,
(*R*)-β-[[2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-
25 amino]benzenepropanol,
(±)-2-[[2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,
2-[[2-Amino-5-[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]ethanol,

(2*R*)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-amino]-4-methylpentanol,

(±)-1-Amino-3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,

5 (±)-1-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,

2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]-2-ethyl-1,3-propanediol,

(±)-β-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-chlorobenzenepropanol,

(±)-3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,2-propanediol,

2-[[2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethyl]amino]ethanol,

15 3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(±)-α-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]-3,4-dichlorobenzenepropanol,

1-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-2-propanol,

2-[[2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethoxy]ethanol,

5-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,

25 (2*S*)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-(methylthio)-1-butanol,

2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]butylamino]ethanol,

2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]propylamino]ethanol,

30

2,2'-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]imino]bisethanol,

2-[[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-(2-hydroxyethyl)amino]methyl]phenol,

5 3-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-(2-hydroxyethyl)amino]-1-propanol,

(±)-1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-pyrrolidinol,

(*trans*)-1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-

10 hydroxy-*L*-proline phenylmethyl ester,

(±)-1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinemethanol,

(±)-1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinol,

15 (2*S*)-1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-2-pyrrolidinemethanol,

1-[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-piperidinol,

(2*R*)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-

20 yl]amino]-1-butanol,

(2*S*)-2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

(2*R*)-2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

25 2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,3-propanediol,

2-[[2-Amino-5-[[[(3-phenoxyphenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-

30 methyl-1-propanol,

1-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-2-propanol,

5-[[2,3-Difluorophenyl)methyl]thio]-*N*⁷-(2-fluoroethyl)thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

5 (1*R-trans*) 2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-cyclopentanol,

(1*S-trans*) 2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-cyclopentanol,

10 2-[[2-Amino-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-Methyl-2-[[2-(methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-[[2-[[5-[[2,3-Difluorophenyl)methyl]thio]-2-[(phenylmethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

15 5-[[2,3-Difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,

(±)-2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

(1*S*,2*S*)-2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-cyclohexanol,

20 (±)-2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol,

(2*R*)-2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

25 (±)-1-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,

2-[[2-Amino-5-[[2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1,3-propanediol,

1-[[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]methyl]-cyclohexanol,

(2*R*)-2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

5 2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-(2-aminoethyl)amino]-1-ethanol,

2-[2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]ethoxy]-1-ethanol,

(α *S*)- α -[(1*R*)-1-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]methylamino]ethyl]-benzenemethanol,

10 1-[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-piperidinol,

5-[[[(2,3-Difluorophenyl)methyl]thio]-*N*⁷-ethyl-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

5-[[[(2,3-Difluorophenyl)methyl]thio]-*N*⁷-(2-propenyl)-thiazolo[4,5-*d*]pyrimidine-2,7-
15 diamine,

(1*S*,2*S*)-2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-phenyl-1,3-propanediol,

2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1,3-propanediol,

20 2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol,

(\pm)-5-[[[(2,3-Difluorophenyl)methyl]thio]-*N*⁷-(2-methoxy-1-methylethyl)-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

*N*⁷-Cyclopropyl-5-[[[(2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidine-2,7-
25 diamine,

(\pm)-2-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

4-[[2-Amino-5-[[[(2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

5-[[[(2,3-Difluorophenyl)methyl]thio]-*N*⁷-[2-(1*H*-imidazol-4-yl)ethyl]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

(±)-*N*-[5-[[[(2,3-Difluorophenyl)methyl]thio]-7-[(2-hydroxy-1,1-dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-2-yl]-serine, methyl ester,

5 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(1-methylethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-(ethylamino)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

10 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(1*H*-indol-3-yl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(1-naphthalenylmethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(1,2-diphenylethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

15 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(2,2,2-trifluoroethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[[[(3,4,5-trimethoxyphenyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

20 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(1,1-dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

25 2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-2-[(4-methylcyclohexyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[5-[[[(2,3-Difluorophenyl)methyl]thio]-7-[(2-hydroxy-1,1-dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide,

2-[[2-[[2-(4-Aminophenyl)ethyl]amino]-5-[[[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

- 2-[[5-[(2,3-Difluorophenyl)methyl]thio]-2-[(2-fluoroethyl)amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 2-[[2-(Cyclopropylamino)-5-[(2,3-difluorophenyl)methyl]thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 5 (±)-2-[[5-[(2,3-Difluorophenyl)methyl]thio]-7-[(2-hydroxy-1,1-dimethylethyl)amino]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-pentanol,
- 2-[[5-[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(2-hydroxyethoxy)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- N*-[5-[(2,3-Difluorophenyl)methyl]thio]-6,7-dihydro-7-oxo-thiazolo[4,5-*d*]pyrimidin-2-yl]-DL-serine, methyl ester,
- 10 5-[(2,3-Difluorophenyl)methyl]thio]-2-[(1-methylethyl)amino]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 5-[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(1*H*-indol-3-yl)ethyl]amino]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 15 2-[[5-[(2,3-Difluorophenyl)methyl]thio]-6,7-dihydro-7-oxo-thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide,
- 2-[[2-(4-Aminophenyl)ethyl]amino]-5-[(2,3-difluorophenyl)methyl]thio]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 5-[(2,3-Difluorophenyl)methyl]thio]-2-[(2-fluoroethyl)amino]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 20 7(4*H*)-one,
- 5-[(2,3-Difluorophenyl)methyl]thio]-2-[[2-(2-hydroxyethoxy)ethyl]amino]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,
- 2-[[2-(Cyclohexylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- 25 2-[[2-[(1,1-Dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,
- N*-[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]-DL-alanine, methyl ester,
- 4-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-cyclohexanol,
- 30

2-Methyl-2-[[2-[(4-phenylbutyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

5 2-Methyl-2-[[2-[(1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-[[2-[[2-(4-Aminophenyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

10 *N*-[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]-L-valine, ethyl ester,

(2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-4-methyl-pentanamide,

2-Methyl-2-[[2-[(2-phenylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

15 2-[[2-[[4-Aminophenyl)methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

20 2-[[2-[(2-Fluoroethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-Methyl-2-[[2-[[3-nitrophenyl)methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(α *R*)- α -[(1*S*)-1-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenemethanol,

25 2-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[3,4,5-trimethoxyphenyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-Methyl-2-[[2-[(1*R*-trans)-(2-phenylcyclopropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

30 2-[[2-[[2-(1*H*-Indol-3-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[2-[(1,1-Dimethylpropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

(±)-2-Methyl-2-[[2-[(1-methylbutyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

5 (±)-2-Methyl-2-[[2-[(1-methylhexyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-[[2-[[2-(2-Aminophenyl)methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

10 2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1,3-propanediol,

2-[[2-[[2-(Ethylthio)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

(2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-3,3-dimethyl-1-butanol,

15 (α*S*)-α-[(1*R*)-1-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-2-methoxyethyl]-benzenemethanol,

2-[[2-(Ethylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

20 2-[[2-[[[3-Fluoro-5-(trifluoromethyl)phenyl]methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

(±)-2-Methyl-2-[[2-[(1-methylpropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

25 2-[[2-[[4-Methoxyphenyl]methyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[2-[(2-Hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[2-[(Diphenylmethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

(2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-butanol,

5 2-[[2-[(2,2-Diethoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

4-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-butanol,

(1*S*,2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-cyclohexanol,

10 (±)-2-[[2-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

15 (±)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-pentanol,

2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide,

(±)-2-[[2-[[1-(4-Fluorophenyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-propanol,

(1*R*,2*S*)-2-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-cyclohexanol,

(α*S*)-α-[(1*R*)-1-[[7-[(2-Hydroxy-1,1-dimethylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenemethanol,

25 (±)-2-[[2-(Methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(2*R*)-4-Methyl-2-[[2-(methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,

N-[2-(Methylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester,

30

(±)-2-[[5-[(Phenylmethyl)thio]-2-[[tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

(±)-2-[[5-[(Phenylmethyl)thio]-2-[[tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

5 (2*R*)-4-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,

N-[5-[(Phenylmethyl)thio]-2-[[tetrahydro-2-furanyl)methyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester,

10 (±)-2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(±)-4-[2-[[7-[[1-(Hydroxymethyl)propyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide,

(±)-4-[2-[[7-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide,

15 4-[2-[[7-[[1-(1*R*)-1-(Hydroxymethyl)-3-methylbutyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide,

(±)-4-[2-[[7-[(2-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-benzenesulfonamide,

20 *N*⁷-Ethyl-*N*²-[2-(1*H*-imidazol-4-yl)ethyl]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

*N*²-[2-(1*H*-Imidazol-4-yl)ethyl]-5-[(phenylmethyl)thio]-*N*⁷-(3-pyridinylmethyl)-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

(±)-2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

25 (±)-2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(2*R*)-2-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

30 (±)-1-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,

5-[[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,

1-[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-(phenylmethyl)-4-piperidinol,

5 (±)-1-[2-[[2-(1*H*-Imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinecarboxamide,

2-[Ethyl[2-[[2-(1*H*-imidazol-4-yl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol,

10 N^2 -[2-(1*H*-Imidazol-4-yl)ethyl]- N^7 , N^7 -dimethyl-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

N^7 -[2-(Diethylamino)ethyl]- N^7 -ethyl- N^2 -[2-(1*H*-imidazol-4-yl)ethyl]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

N^2 -(2-Phenoxyethyl)-5-[(phenylmethyl)thio]- N^7 -(3-pyridinylmethyl)-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

15 N^2 -(2-Phenoxyethyl)- N^7 -[1-(phenylmethyl)-4-piperidinyl]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

2-Methyl-2-[[2-[(2-phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

20 (±)-2-[[2-[(2-Phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(±)-4-Methyl-2-[[2-[(2-phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,

1-[2-[(2-Phenoxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-4-(phenylmethyl)-4-piperidinol,

25 2-[[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

2-[[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

30 (2*R*)-2-[[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

N-[2-(Cyclopropylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester,

(2*R*)-2-[[2-[[1-(Hydroxymethyl)butyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

5 *N*-[2-[[1-(Hydroxymethyl)butyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-L-serine, ethyl ester,

(±)-2-[[7-[Cyclohexyl(2-hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-1-pentanol,

2-[[2-[[7-(Ethylamino)-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethoxy]-1-ethanol,

2-[[2-[[7-[(1-Methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethoxy]-1-ethanol,

(±)-2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

15 2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-methyl-1-propanol,

(2*R*)-2-[[2-[[2-(2-Hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

2-[[Cyclohexyl-[2-[[2-(2-hydroxyethoxy)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-ethanol,

(±)-2-[[5-[(Phenylmethyl)thio]-2-(4-piperidinylamino)thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(±)-*N*-[2-[[7-[[1-(Hydroxymethyl)propyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide,

25 (±)-*N*-[2-[[7-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide,

N-[2-[[7-[(2-Hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide,

30 *N*-[2-[[7-[[[(1*R*)-1-(Hydroxymethyl)-3-methylbutyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]ethyl]-acetamide,

*N*⁷-(2-Methoxyethyl)-5-[(phenylmethyl)thio]-*N*²-[2-(2-thienyl)ethyl]thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

*N*⁷-(2-Ethoxyethyl)-5-[(phenylmethyl)thio]-*N*²-[2-(2-thienyl)ethyl]thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

5 *N*⁷-(2,2-Dimethylpropyl)-5-[(phenylmethyl)thio]-*N*²-[2-(2-thienyl)ethyl]thiazolo[4,5-*d*]pyrimidine-2,7-diamine,

(2*R*)-4-Methyl-2-[[5-[(phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,

(±)-1-[[5-[(Phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-2-propanol,

(±)-2-[[5-[(Phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

(±)-2-[[5-[(Phenylmethyl)thio]-2-[[2-(2-thienyl)ethyl]amino]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

15 (2*R*)-2-[[2-[(2-Hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

(±)-*N,N*-Diethyl-1-[2-[(2-hydroxyethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]-3-piperidinecarboxamide,

(2*R*)-2-[[2-[(3-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-4-methyl-1-pentanol,

(±)-2-[[2-[(3-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-butanol,

(±)-2-[[2-[(3-Hydroxypropyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

25 2-[[7-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]amino]-acetamide,

4-[1-[7-[(4-Methylcyclohexyl)amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-2-yl]-3-azetidiny]-1-piperazinesulfonamide,

3-[[2-[[2-(4-Morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

2-Methyl-2-[[2-[[2-(4-morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

(±)-2-[[2-[[2-(4-Morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-propanol,

5 (2*R*)-4-Methyl-2-[[2-[[2-(4-morpholinyl)ethyl]amino]-5-[(phenylmethyl)thio]thiazolo[4,5-*d*]pyrimidin-7-yl]amino]-1-pentanol,

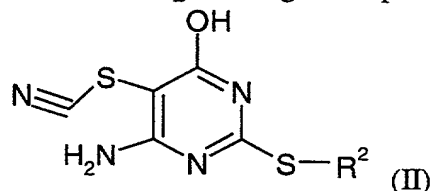
2-[[2-(3,4-Dihydroxyphenyl)ethyl]amino]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,

10 (±)-2-[(2-Hydroxy-1-methylethyl)amino]-5-[(phenylmethyl)thio]-thiazolo[4,5-*d*]pyrimidin-7(4*H*)-one,

and their pharmaceutically acceptable salts and solvates.

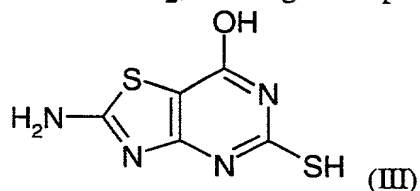
7. A process for the preparation of a compound of formula (I) as defined in claim 1 which comprises:

15 (a) when X represents -OH and R¹ is NH₂, heating a compound of general formula



wherein R² is as defined in formula (I); or

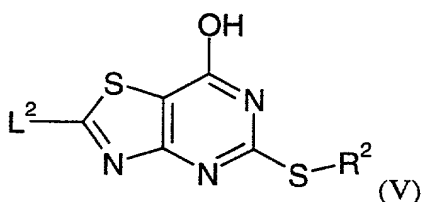
(b) when X represents -OH and R¹ is NH₂, reacting a compound of formula



20 with a compound of general formula (IV), R² - L¹, wherein L¹ represents a leaving group and R² is as defined in formula (I); or

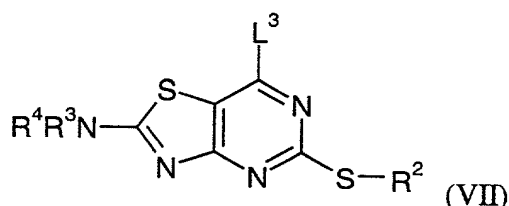
(c) when X represents -OH or -NR¹³R¹⁴ and R¹ is a hydrogen atom, reacting a corresponding compound of formula (I) in which R¹ is NH₂, with a diazotizing agent; or

25 (d) when X represents -OH and R¹ is a group -NR³R⁴, reacting a compound of general formula



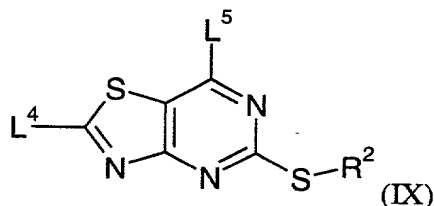
wherein L^2 represents a leaving group and R^2 is as defined in formula (I), with a compound of general formula (VI), R^3R^4NH , wherein R^3 and R^4 are as defined in formula (I); or (e) when X represents $-NR^{13}R^{14}$ and R^1 represents $-NR^3R^4$, reacting a compound of

5 general formula



wherein L^3 represents a leaving group and R^2 , R^3 and R^4 are as defined in formula (I), with a compound of general formula (VIII), $NHR^{13}R^{14}$, wherein R^{13} and R^{14} are as defined in formula (I); or

10 (f) when X represents $-NR^{13}R^{14}$ and R^1 represents $-NR^3R^4$, reacting a compound of general formula



wherein L^4 is a leaving group, L^5 is a leaving group and R^2 is as defined in formula (I), initially with a compound of formula (VI) as defined in (d) above followed by reaction with
15 a compound of formula (VIII) as defined in (e) above;

and optionally after (a), (b), (c), (d), (e) or (f) forming a pharmaceutically acceptable salt or solvate of the compound of formula (I).

20 8. An intermediate compound of formula (V) as defined in claim 7.

9. An intermediate compound of formula (VII) as defined in claim 7.

10. An intermediate compound of formula (IX) as defined in claim 7.

11. A pharmaceutical composition comprising a compound of formula (I), or a
5 pharmaceutically acceptable salt or solvate thereof, as claimed in any one of claims 1 to 6
in association with a pharmaceutically acceptable adjuvant, diluent or carrier.

12. A process for the preparation of a pharmaceutical composition as claimed in claim 11
which comprises mixing a compound of formula (I), or a pharmaceutically acceptable salt
10 or solvate thereof, as claimed in any one of claims 1 to 6 with a pharmaceutically
acceptable adjuvant, diluent or carrier.

13. A compound of formula (I), or a pharmaceutically-acceptable salt or solvate thereof, as
claimed in any one of claims 1 to 6 for use in therapy.

14. Use of a compound of formula (I), or a pharmaceutically acceptable salt or solvate
thereof, as claimed in any one of claims 1 to 6 in the manufacture of a medicament for use
in therapy.

15. A method of treating a chemokine mediated disease wherein the chemokine binds to a
CXCR2 receptor, which comprises administering to a patient a therapeutically effective
amount of a compound of formula (I), or a pharmaceutically acceptable salt or solvate
thereof, as claimed in any one of claims 1 to 6.

16. A method of treating an inflammatory disease in a patient suffering from, or at risk of,
said disease, which comprises administering to the patient a therapeutically effective
amount of a compound of formula (I), or a pharmaceutically acceptable salt or solvate
thereof, as claimed in any one of claims 1 to 6.

17. A method according to claim 16, wherein the disease is psoriasis.

**RULE 63 (37 C.F.R. 1.63)
DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

NOVEL COMPOUNDS

the specification of which (check applicable box(es)):

- ☐ is attached hereto
- ☐ was filed on _____ as U.S. Application Serial No. _____ (Atty Dkt. No.)
- ☒ was filed as PCT international appl. No. PCT SE99/01333 on 03 August 1999

and (if applicable to U.S. or PCT application) was amended on _____

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with 37 C.F.R. 1.56. I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed or, if no priority is claimed, before the filing date of this application:

Prior Foreign Application(s):

Application Number	Country	Day/Month/Year Filed
9802729-5	Sweden	13 August 1998

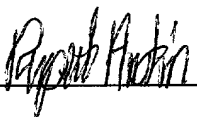
I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below.


Application Number	Day/Month/Year Filed

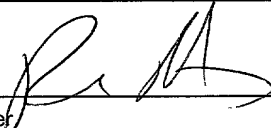
I hereby claim the benefit under 35 U.S.C. 120/365 of all prior United States and PCT international applications listed above or below and, insofar as the subject matter of each of the claims of this application is not disclosed in such prior applications in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. 1.56 which occurred between the filing date of the prior applications and the national or PCT international filing date of this application:

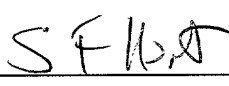
Prior U.S./PCT Application(s): Application Serial No.	Day/Month/Year Filed	Status: patented, pending, abandoned

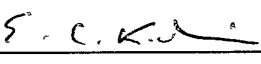
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon. And I hereby appoint **NIXON & VANDERHYTE P.C., 1100 North Glebe Rd., 8th Floor, Arlington, VA 22201-4714, telephone number (703) 816-4000 (to whom all communications are to be directed)**, and the following attorneys thereof (of the same address) individually and collectively my attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and with the resulting patent: Arthur R. Crawford, 25327; Larry S. Nixon, 25640; Robert A. Vanderhye, 27076; James T. Hosmer, 30184; Robert W. Faris, 31352; Richard G. Besha, 22770; Mark E. Nusbaum, 32348; Michael J. Keenan, 32106; Bryan H. Davidson, 30251; Stanley C. Spooner, 27393; Leonard C. Mitchard, 29009; Duane M. Byers, 33363; Paul J. Henon, 33626; Jeffrey H. Nelson, 30481; John R. Lastova, 33149; H. Warren Burnam, Jr., 29366; Thomas E. Byrne, 32205; Mary J. Wilson, 32955; J. Scott Davidson, 33489; Jerry D. Craig, 38026; Alan M. Kagen, 36178; William J. Griffin, 31260.

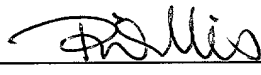
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 Inventor: Fraser Hunt British
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5. Inventor's Signature:  Date: 27 Aug 1999
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6. Inventor's Signature:  Date: 27 Aug 1999
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 (first) MI (last) (citizenship)
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